Telephony.

THE AMERICAN TELEPHONE JOURNAL

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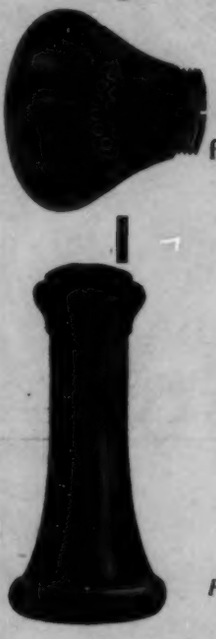

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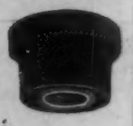

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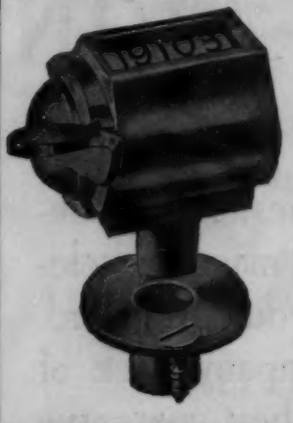

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¶ When you desire to take the count of the calls the operator answers, a Veeder Counter is necessary.

¶ Get a counter that can be depended upon at all times. You can make no mistake in selecting the Veeder.

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Here is a serviceable portable desk telephone that will withstand all climatic conditions and the greatest amount of hard use. Its exterior finish and design are characteristic of high-grade workmanship and lasting quality.

The notable feature originated with this design is an interchangeable inner base, which makes it convenient and practical to change any instrument of the type for any kind of service by substituting one set of contact springs and terminal block for another. Made in a variety of codes for any type system. Equipped with the perfect type No. 7 Transmitter and No. 14 type receiver—Metal or Wood extension bell boxes, as required, for either regular or four-party line service.

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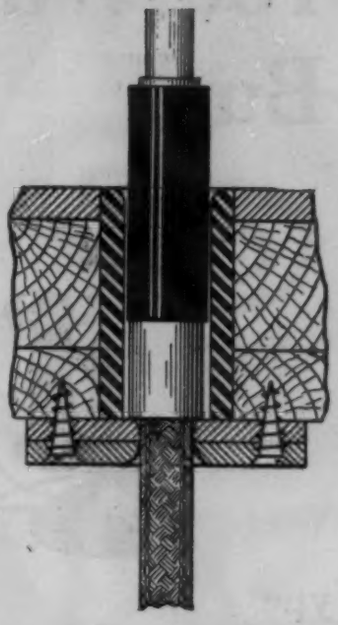

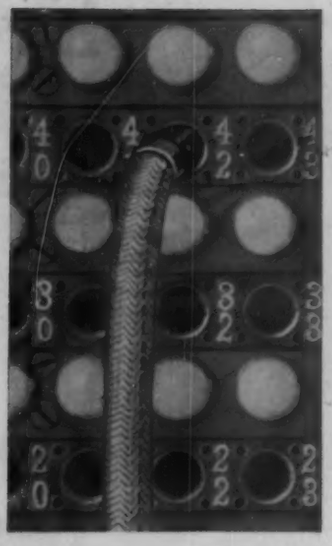

From Chapters in our Bulletin No. 69

Switchboard Cords

Switchboard cords were formerly one of the greatest problems in connection with the telephone business. The cords of former days were all made of fine copper tinsel in order to secure the necessary degree of flexibility. Such cords were well covered with several braids of cotton or linen to carry the strain, insulate the conductors and protect them from breakage and injury.

It was found, however, that no matter how tightly the protecting covering might be woven, it would stretch with usage and allow the strain to be taken by the tinsel conductors. These would gradually break away at their weakest point, which was close up to the plug where the cord had been subjected to frequent bending. After becoming broken the severed ends of the tinsel conductors would still touch each other loosely and this resulted in the most exasperating thing in the telephone business from the patrons' standpoint, namely, a "scratchy," "stuttering," "choppy" cord.

The first attempt to get away from this condition was by the use of a cord employing no tinsel, but instead two conductors of steel piano wire coiled like a spring and arranged concentric or parallel.

The idea was that these coiled steel conductors would stretch out without breaking, as the cord's braid became old and thus insure a reliable connection. Experience soon pointed out one fatal draw-back to this scheme in the form of the high resistance offered to the talking current by the highly tempered steel wire. Thus while steel cords are still used by some companies in local work, they are absolutely barred by the same companies on their toll boards and toll service trunks for which purpose the old tinsel cords with all their short-comings and continual maintenance expense are retained.

The earlier Kellogg boards were equipped with tinsel cords of the best obtainable quality, but the Kellogg Company set about the designing of a cord that could

be used for all kinds of service and would not have the defects possessed by the best cords then in use.

It was found that an almost perfect cord could be produced by using steel wires wound over braided tinsel. The steel conductors were found to be practically unbreakable, while the presence of the copper tinsel insured the lowest resistance to talking currents. Thus a cord was secured capable of giving reliable service without any attention, until the outer braids had become worn entirely through.

Experience had proven that the outer braids gave way because of rotting of the fabric, caused by cords becoming saturated with perspiration from the operator's hands. This the Kellogg Company overcame entirely by treating the outer layer of their cord with a compound that works down into a glazed moisture-proof coating, that leaves the cord perfectly flexible, but increases the life of the outer braid three-fold. Many attempts have been made to secure like results by boiling the entire cord in wax, but this only causes the cords to ooze grease over everything in hot weather and renders them too stiff and unwieldy for use at ordinary temperatures.

The illustrations on opposite page show detail of Kellogg cord and our special tangential sewing of outer braid, which can never ravel back, should it be neglected after wearing through near the plug.

The present Kellogg cord, with its combination tinsel and steel conductors and treated linen armor, was placed on the market in 1904. Unbelievable as it may seem, many of the first cords sent out lasted over six years in busy exchanges, by which fact the great durability of the cord is proven beyond question.

It seems to be the consensus of opinion, among the oldest and largest users of Kellogg boards, that these cords will last on an average of four years with two cut-backs. This certainly reduces maintenance to a minimum, especially since anyone can be taught to make a perfect cut-back which requires absolutely no material and only a knife, a pair of pliers and a screw driver, in the way of tools.

The Kellogg Company is prepared to make up these cords to fit any make of switchboard plug and solicits inquiries for quotations on such cords made up to fit plugs as per samples submitted by customer. Notwithstanding their longer life and better service qualities, these Kellogg cords will be found to cost very little, if any more than many inferior cords.

It is not uncommon for the Kellogg Company to be called upon to furnish cords to other manufacturers, for use on switchboards purchased for extensions to existing equipment, by some one alive to Kellogg quality.

Have you a copy of Bulletin No. 69 on Magneto Switchboards? We will send it to you promptly at your request.

It is a valuable exchange book for any operator.

Kellogg Switchboard & Supply Company

Main Office and Factory: Chicago

Kansas City, Mo. **San Francisco, Cal.**

Canadian Branch: Deering Electric, Ltd. Regina, Sask.

USE IS THE TEST

To the Magneto Exchange Man:

Do you realize that the only real progress made during the past five years in the development of the Magneto Telephone Equipment has been brought about solely by the CRACRAFT-LEICH ELECTRIC CO.?

No other Magneto Equipment produces such results and embodies so many refinements—refinements so prevalent and practical that the experienced telephone man at once appreciates its excellence.

The CRACRAFT-LEICH ELECTRIC CO. are the exclusive manufacturers of the following apparatus and systems:

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FOUR, EIGHT, TEN or TWELVE PARTY PULSATING HARMONIC SELECTIVE SYSTEMS.

MAGNETO MULTIPLE SWITCHBOARDS with DROPS ELECTRICALLY RESTORED from either ANSWERING or MULTIPLE JACK.

NON-MULTIPLE SWITCHBOARD with ELECTRICALLY RESTORED CLEAR-OUT DROPS.

MECHANICALLY RESTORED COMBINED DROP and JACK having a FIXED POLE PIECE and a PERMANENT ARMATURE ADJUSTMENT.

CODE RINGING DROPS having an INDEPENDENT ARMATURE for OPERATION of the RELAY CONTACT.

Patents are pending and others have been issued covering the above systems and associate parts, all of which are owned and controlled solely by the CRACRAFT-LEICH ELECTRIC CO.

The CRACRAFT-LEICH ELECTRIC CO. further offers a complete line of standard FARM LINE TELEPHONES—both wall and desk types—to operate in connection with any system now in use, as well as a complete line of COMMON BATTERY TELEPHONES, comprising residence and hotel sets in wood or metal cabinets, desk sets and business wall types.

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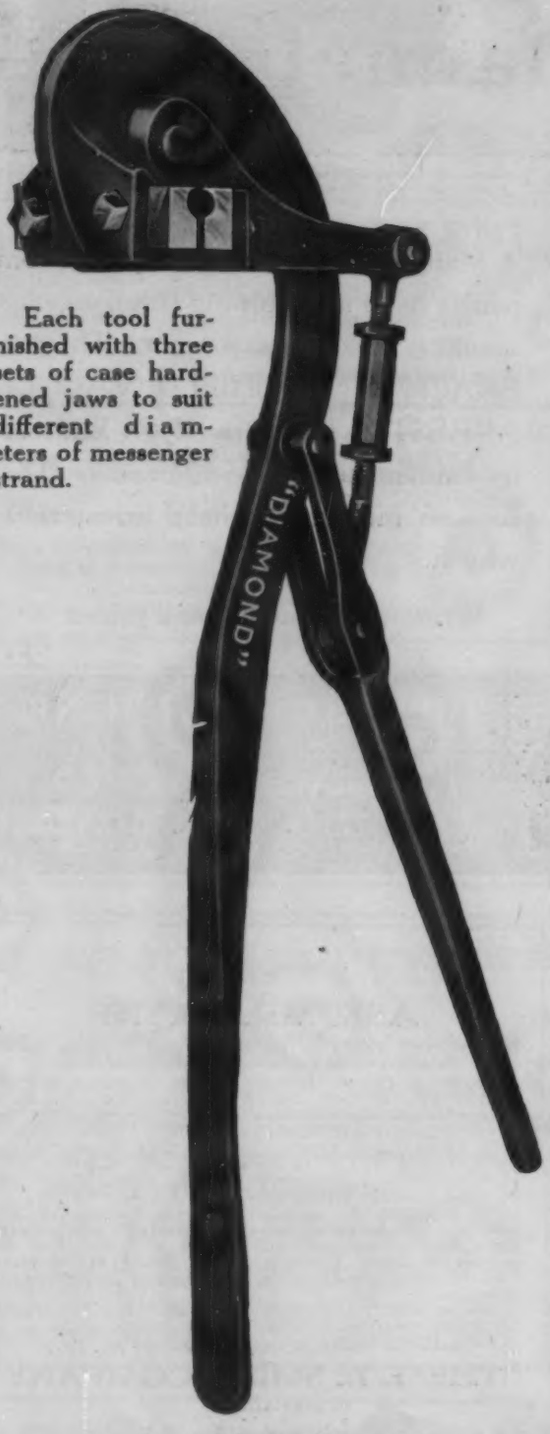

Each tool furnished with three sets of case hardened jaws to suit different diameters of messenger strand.

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For Securely Crimping Aerial Rings to Suspension Strands

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Each tool is furnished with three sets of jaws of different diameters, to suit the three standard suspension strands commonly used. Additional jaws can be furnished at a nominal cost to replace any that may have worn out. By the insertion of new jaws the tool can be made practically as good as new and used indefinitely.

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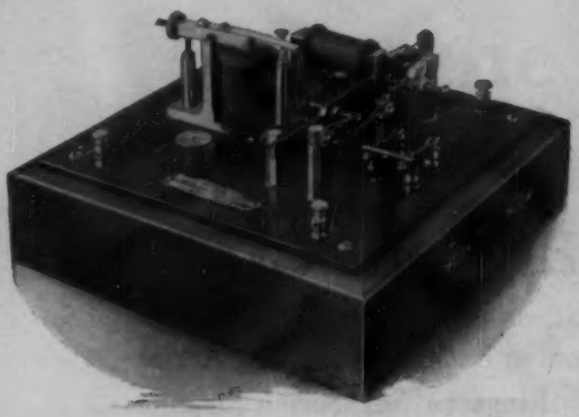

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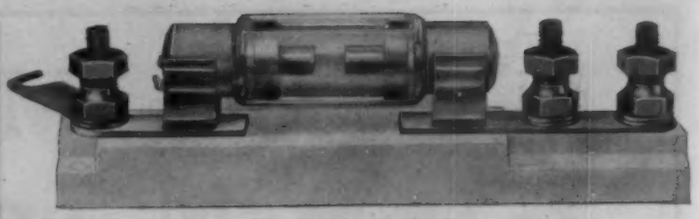

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Many large and small telephone companies have no lightning troubles whatsoever. The reason is plain. They use BRACH MICA SHIELD VACUUM ARRESTERS exclusively. Endorsed by eminent telephone engineers. They cost no more than cheap arresters, so why not use the best?

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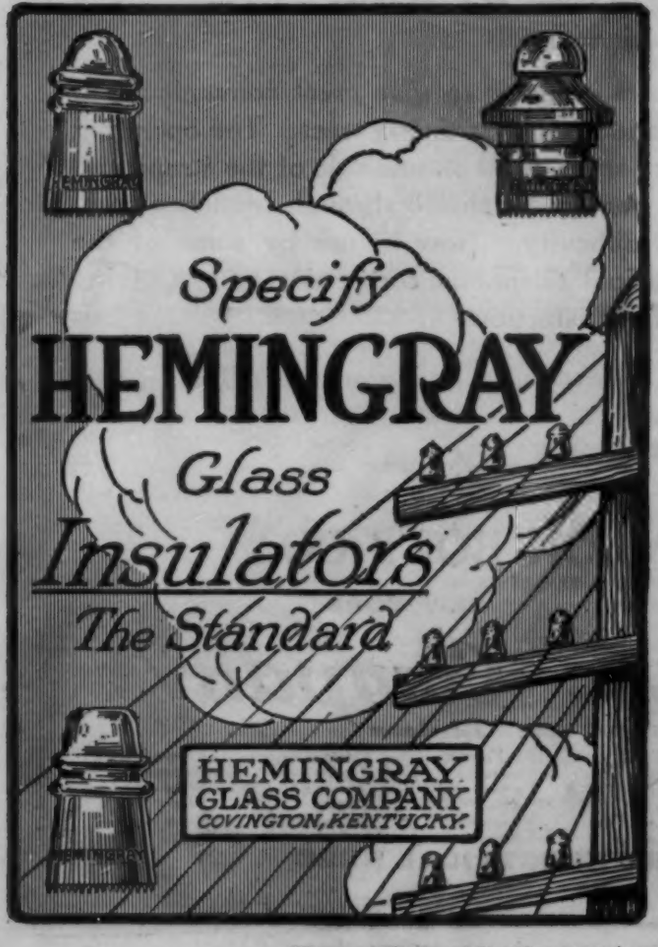

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He Will Tell You How He Constructed Conduits for the Pacific Tel. & Tel. with a Smith Hand Mixer

Mr. S. I. Payne, Subway Const. Foreman for the Pacific Tel. & Tel. Co. of Portland, Oregon, under date of Oct. 21st, 1913, states: "The Smith Hand Mixer which I purchased from you for this company is a great labor saver. I have used it nearly two months, and find it to be satisfactory in every way. It certainly is a great improvement over the old way of hand mixing with a shovel."

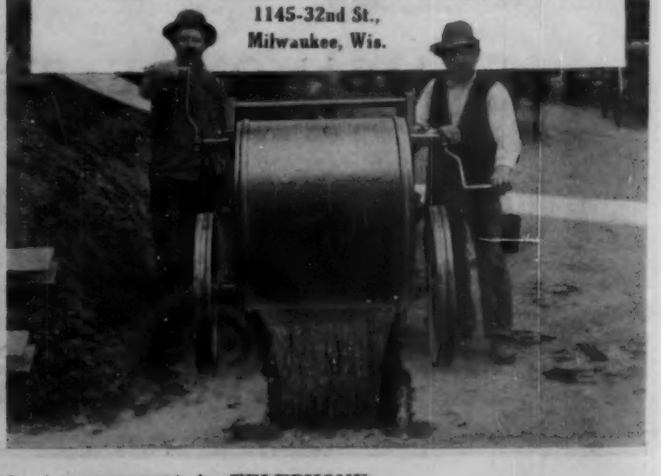
"It is especially adapted to trench work. Taking everything into consideration, I deem it 100% better than the old way of hand mixing."

Four ordinary laborers and a Smith Hand Mixer can do as much work as eight skilled shovel mixing men.

Let us send you further information. A 50% saving on your concrete mixing is well worth while.

Send for Smith Hand Mixer Folder No. 15-P

THE T. L. SMITH COMPANY
1145-32nd St.,
Milwaukee, Wis.



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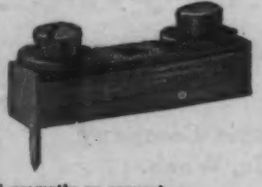
STANDARD in all Correct Construction

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You Want Conduit that Combines Great Durability, Efficiency, Economy

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AND HERE'S WHY:

Great Durability, because of its solid homogeneous construction from specially-treated fibre, formed under pressure and made water, oil, acid, gas and chemical-proof. Will not break, corrode or decay.

Great Efficiency, because of its dielectric and mechanical strength, complete insulating value, perfect water and gas tight joints, smooth bore, and fire-resisting quality.

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Yours respectfully,

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Nothing gives a man more genuine satisfaction than having things taken care of and his business looked after and attended to promptly and correctly. Isn't that so?

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We are constantly cultivating the spirit of service which, in addition to the unexcelled character of Garford equipment, should most certainly interest you and every other individual that is in any way interested in the Telephone business. We are trying to have you know and realize that it will be good business for you to fully familiarize yourself with our product and proposition. If we fail to convince you, it's the fault of the Ad, and not the fault of the equipment and service we offer you. **Remember that.**

Our Bulletins should be in your possession. If they are not, a card from you will bring them. Attend to it now.

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The above type of board is ideal when a few lines are to be served. Has a capacity for 30 lines—10 cord circuits, but can be wired and equipped with number desired up to its capacity. This board has the characteristics of all Garford products. It's built to use and built to last. This board with many other types are shown and described in detail in our Bulletin 104. Well worth asking for. We will gladly send it with complete prices on style and size board you are interested in.

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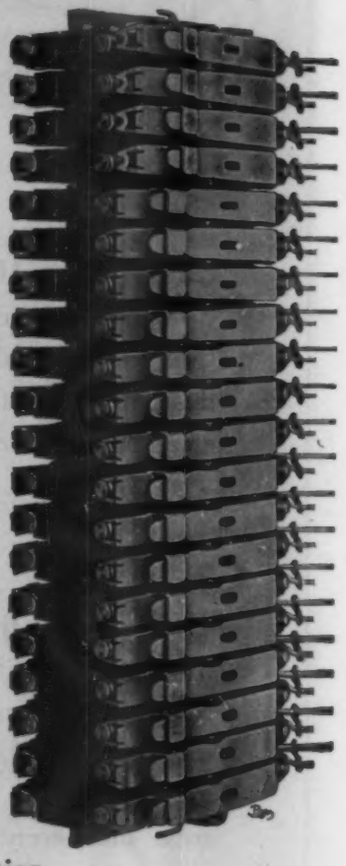

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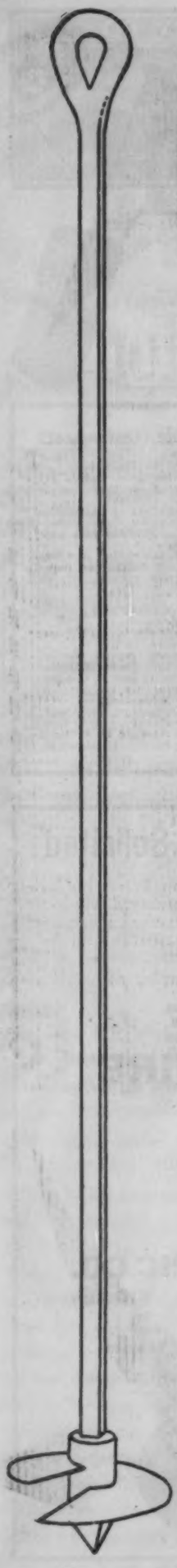

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Think about it a moment. It can't be improved because it is *right* now. Give it any new power and you take away or impair some of its present abilities.

The same is true of Matthews Guy Anchor. It can't be improved upon because it is *the* perfect Anchor. Now and then some new anchor appears, extravagant claims are made about it, but somehow the anchor never lasts long. Why? Because not being a Matthews Guy Anchor it must be inferior and time always shows its weakness.

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In the anchor business, we are in the same position as the Marathon runner.

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Are especially adaptable for use in telephone inspection service. Instruments are provided with a neat leather carrying case and shoulder strap, or they may be slipped in the coat pocket.

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Telephony.

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STUDY AND SUCCESS.

Study, and study hard. But never let the thought enter your mind that study alone will lead you to the heights of usefulness and success.—Grover Cleveland.

Judicial Decisions as to State Commission Authority.

While it is somewhat early in the history of controversy over state commission authority to perceive clearly the boundary lines of such authority, the higher courts are wrestling with the question and a few decisions that have been reached, shed some light on the subject. In California the state supreme court has held, in the case involving the right of the Oro Electric Corporation to exercise a franchise privilege granted by the city of Stockton, that the commission, in rejecting the company's application for a certificate of convenience and necessity on the ground that better service could be given the public without competition, exceeded its authority. The California law enables municipalities to retain their powers of regulating the operations of public utility corporations until they choose to surrender them and the state supreme court resisted the commission's action as an encroachment upon this right.

In New Jersey, on the other hand, the Board of Public Utility Commissioners refused to approve ordinances which had been granted the Eastern Telegraph & Telephone Co. by the freeholders of Cape May County and the borough of Avalon, on the ground that the district was already adequately served by another company. The telephone company attempted to compel the granting of approval by mandamus proceedings, but the Supreme Court of New Jersey held that the law under which the board of commissioners was created gave it the power exercised, and did not merely limit it to supervising the execution of the permission and consent granted by a municipality.

That states have the power to fix absolutely the rates which public service corporations may charge their consumers, without regard to franchises and contracts which may previously have been entered into between such utilities and municipalities, was affirmed by the United States Supreme Court, in January, in the case of the Kansas Public Utilities Commission against the Wyandotte County Gas Co. The terms of such contracts, it was decided, could not prevail before a state law which gave a commission "full power, authority and jurisdiction to supervise and control public utilities and all common carriers" doing business in the state.

But while enunciating this sweeping principle, the United States Supreme Court has refused to close the door of federal judicial relief to such utilities. In the case of the Vermont commission against the Rutland Railroad Co. the court held that the provision in the law creating the commission which provides that appeal from the decisions of the commission shall be to the state supreme court, merely represents an alternative and a more expeditious way of doing what might be done by a bill in equity and that in order to be exonerated from an order that exceeds the law the appellant was free to assert its rights in the federal courts.

A Spring Cleaning Hint.

Spring cleaning is now the order of the day, and in every locality houses and yards are being put in order. Rubbish left from winter is being burned or carted away, and a general tendency is manifested to spruce up appearances. Some telephone companies have adopted the idea of offering cash prizes to employes who keep their branch exchanges in the best order during the summer months, the awards of merit to be made September 1.

It is a good plan and fits in with the general trend of the times to beautify business surroundings. The progressive concern has reached the opinion that a pleasant, clean, cheerful environment is certain to add to the contentment and happiness of employes, and, therefore, increase their efficiency.

Telephone companies can do much to make their exchanges more attractive. Trees, shrubs and flowers, at small expense, will make the grounds beautiful, and a little extra care will keep the exchange building cleaner and neater all the year round. It will be found to pay in more ways than one.

Can You Stand Investigation?

By HERBERT KAUFMAN

Have your fling and makes the most of it while the chance lasts. Squander yourself, play the spendthrift, fritter away your energy, dissipate your forces, glut and poison your system as your will suggests. But don't forget that settling day is ahead. There'll be an accounting—and soon. And if your books aren't balanced, you'll suffer.

Oh, no, this isn't a moral homily, nor a sermon. It shares nothing in common with copybook maxims, nor does it take inspiration from the tracts and dissertations of the earnest and well-intentioned old gentlemen who for centuries have sought to instill respect of self in the bosom of headstrong youth.

Somehow or other society hasn't succeeded signally in her attempt to protect man from himself by attacking his frailties through an appeal to reason, so commerce has taken the situation in hand and the questions of morality and health are being reduced to a business equation. The spirit which inspires the movement may lack the disinterested nobility of science, religion and philanthropy, but it promises to succeed where theory has failed.

Humanitarianism can take little credit for the promotion of eugenics by industry. The market place is a cold blooded, hard-headed institution, but it develops vision and common sense.

Your employer refuses to suffer from your late hours, can't afford your irritability and headaches, has endured your bad teeth and poor eyes for far too long, and is frowning at the figures which establish the cost of your ruined digestion.

The efficiency engineers have whetted his appetite for reform. They have initiated him into the mysteries of fuel and its relation to power; translated to his layman comprehension, the problems of "lost motion" and kindred subjects in which he did not dream that he was interested. Now they are training him to look upon his men as units in a general scheme of production—to regard them as high types of machinery, yet subject to the same broad law of consequences as the engines which they handle.

Just as flawed timbers are unreliable and likely to break under strain—just so a man with a flaw in his nature or his body is a poor selection for a post of responsibility.

Just as wheels must be examined, belting overlooked, gears scrutinized, and equipment overhauled at regular intervals—it is likewise a sane and advisable policy to periodically subject all employes to an exhaustive medical survey so that valuable individuals can be taken in hand while there is yet time and saved for further usefulness, and the physically worthless eliminated before personal incompetence can deeply affect their duties. Poor teeth threaten to discount an alert brain at a crucial moment. When a jaw is thumping with agony, a mind can't at the same time jump at opportunity.

Unsuspected weak lungs may force the retirement of a valuable aid at the very crux of an important campaign, jeopardizing the success of a decisive venture.

These are the things that business is thinking.

Because it pays to have you right, an inevitable outgrowth of the new spirit will be a system of espionage to make sure that you are not going wrong. What's that? This is a republic, you say—a land of liberty? But don't forget that it is also a land in which those who hire are at liberty to guard their interests. Nobody wants to interfere with you. It's the other way around. Your paymaster means to make sure that you do not interfere with his rights.

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Gathering the News by Use of Long Distance Telephone

Vivid Description of the Gathering and Dissemination of News by the Press Through Use of Long Distance—Methods that Have Been Developed by Press Associations—Press Toll Service—Reproduced Through Courtesy of the Publishers' Guide

By Hrolf Wisby

"How do you find out so quickly about things?" is the question the layman always asks the newspaper man. If the latter stops to think, he answers, "Over the telephone, of course."

There is probably no profession in the world that has so completely changed its methods of procedure, as has the business of news getting during the past 10 or 15 years. The liberal use of the local and long distance telephone has not only speeded up the business all along the line; it has created an entirely new type of newspaper man.

There are men still at work on Park Row who remember the time when a fire late at night in Harlem was left unrecorded until the issue of the following day. The following which appeared on the front page of a New York newspaper is not beyond the memory of the oldtimer:

"As we go to press there is discernible from the windows of our office, a great red glare in the north which indicates a conflagration of considerable size. A full account of this will appear in tomorrow's issue."

Nowadays the Harlem "leg man" would be glued to a telephone, busily engaged in sending a list of dead and injured, long before the glare would be "discernible" to those in his office.

Now the reporter of 20 years ago was not any slower

A New York Press Association Sending a News Story by Telephone to Boston.

mentally or physically than the newsgetter of today, in fact, if the truth be told he was probably fully as alert and in many instances more ingenious. It was simply impossible for him with the means of communication that he had to get news to the public within what we would consider today as a reasonable time after its occurrence.

The modern newspaper came into being with the telegraph and cable, but it did not come into its full growth until the value of the telephone was first realized by editors and reporters. The heart of the newspaper office of today is in the row of telephone booths in every city room. The most valuable man in the shop is no longer the editor with inkstains and flowing black tie, but the little man over there in the corner with the head set, who is pounding out copy on his machine as fast as the voice at the other end of the wire reels it off.

The efficiency of the new way of news-getting was probably put to its sternest test in New York one crowded April night. The Titanic had sunk and the sturdy Carpathia was bringing back its survivors. No real story of the disaster could be printed until it came from the lips of those aboard the returning steamship. The wireless had given but tantalizing hints of what had happened out there in the great depths. Every city editor in New York knew that he was face to face with one of the crises of his professional life. He knew that it was a time when the world would sit in judgment on the speed and accuracy of his organization, of which he had so often boasted. It is significant that at such a time he showed his faith in the telephone by adopting it as the means by which this "greatest story since Gettysburg" should be told to nations.

And at the other end of the telephone wires going out of New York, in Boston and Philadelphia newspaper offices, in Washington and Chicago, at receivers all the way to Omaha, the press of the United States was awaiting the first definite word of the disaster. Faces strange to Manhattan reporters appeared along Park Row. The star men of out-of-town papers were pouring into the town to cover the night's developments. They were fortunate, these newcomers, if their papers had branch offices in New York from which they could send their stories over the long distance wires. Those who had no offices were down at the American Telephone & Telegraph Company's building, making arrangements for clear wires through to their home towns. The telephone's duties were not by any means to stop at local service; over valleys and rivers and mountain ranges, the copper wires were called on to carry the story of the Titanic's loss.

New York Daily Paper Receiving a News Story from its Utica Correspondent.

Early in the day that the Carpathia was to dock, installers from the telephone company were at work in the

newspaper offices putting in instruments especially adapted for the work to be done. A small hotel directly opposite the Carpathia's pier was selected as the sending end. The entire hotel was given up for that night to the newspapers. Each paper hired a room where telephone instruments, that had direct wires leading into the offices, where installed. Then came the selection of the men who were to handle the story. One by one the members of the staff were called to the city desk and given their assignments. It was the "telephone reporter's" day. One man ordinarily a good newsgetter but notoriously inefficient on a telephone, came as perilously near to tears as a newspaper man ever should come, when he found that he was assigned to a meeting in Brooklyn that night and would have no part in the handling of the big story. A reporter said afterwards that the most trying part of all that trying day was waiting around in the afternoon with "nothing to do but watch the installers at work and wonder what my night's work would be."

By 8 o'clock in the evening, everything was ready. In the offices, the men who were to take down the stories were oiling up their typewriters, or fiddling with their head sets. Uptown, those in charge of the telephones were issuing final instructions. As soon as a reporter had interviewed a survivor and got what he considered to be a story, he was to sprint for his paper's room in the hotel, take the telephone assigned to him and dictate from his notes, direct to the man in the office, his account in the shape in which it was to appear in the paper the next morning. Even to one accustomed to dictating, the difficulties of composition and transmission under such nerve-racking surroundings must be at once obvious.

A light drizzle began to fall and then, far down the river, sounded a deep warning whistle. Presently the bulk of the slow moving Carpathia heaved out of the drift, lighted every now and then by the flashes of the photographers' powder on a dozen little tugs alongside. The hotel across the way began a small bombardment of its own. Out of every window photographers were leaning, setting off their flashes until the whole, great, rain-dimmed plaza was bright as day. In a moment the newspaper men were at their work. Every survivor was surrounded by an eager, rain-coated group writing as fast as pencil could be pushed across copy paper. Every now and then, these groups would break up and their members come splashing across the square in a rush for the telephones. Then began the work of dictation. These men knew their business. They neither bellowed nor whispered into the receivers, and while the little hotel rocked under the tread of many feet and shivered under the successive detonations of powder, they went calmly on, telling the story of the wreck as it was told to them.

In the offices on Park Row and uptown, the machines were clattering in tune to the voices on the wires. The men at the receiving end had ears only for what those voices were saying. The noise of the room was cut out for them by their head sets. When they finished a page, the copy boys rushed it to the copy readers and in a moment it was on its way to the composing room.

Those who read the first editions at 1:30 o'clock the next morning, knew nothing of the manner in which they had been prepared, but they did know that they had in their hands, complete and graphic descriptions of the world's greatest marine disaster. The telephone had made good!

In any discussion of the relation of the telephone to news gathering, it is a mistake to suppose that it was an overnight development. The handling of the Titanic story has behind it years of struggle on the part of many telephone men, in many different places, to make those instruments in that uptown hotel equal to just such an emergency. The history of press news service by telephone is like the story of the telephone itself, one of slow growth, lingering development.

Everyone knows how long it took the people of this country to awaken to realization of what the telephone meant. The early struggles of Bell and his associates to

New York Press Association Taking a Story from Pittsburgh.

give the people what they wanted, are frequently cited by those who contend that, as a rule, the people do not know what they want. The popular picture of an editor, is that of a man always a little ahead of his times, who is ready to grasp at any innovation that will help speed up his business. But one of the greatest editors of our times fought for years against the introduction of typewriters in his office. The editor, as a matter of fact, has as deep-laid prejudices against anything new and as large a quota of innate inertia in his makeup, as the lawyer or doctor.

The real fight on the part of the telephone people to make the editors of this country take what would do them good, began back in 1908. The editors, some of them, protested with the whole-hearted vehemence of the small boy face to face with castor oil. They were content with the present methods, thank you. They did not see that their business field had extended far beyond the resources of any one means of communication. They did not want any more telephones in their offices. Once they had called up their wife and had been given the wrong number. The stuff might make them well, but they didn't like the taste.

"Very well," said the telephone men, "we will show you that not only will it make you well, but you will like the taste so much that before long, you can't get enough of it."

It was in Ohio at last, far away from Nassau street, the true home of conservatism—Ohio and the Middle West that is not afraid of a thing because it is new—that the telephone people won their first round of the fight. They got a big press association to put in a telephone news service. This first service was known in the telephone thesaurus as "P. N. D." and "P. N. D.," took things by storm. "Public

(*Continued on page* 37.)

District Court Upholds Commission in Oregon Hotel Case

Decision Handed Down Denying an Interlocutory Injunction Sought by the Pacific Telephone & Telegraph Co. —Commission's Physical Connection Ruling Held to Come Reasonably Under Its Regulatory Power—No Confiscation of Plaintiff's Property Involved

The district court of the United States for the district of Oregon has handed down a decision denying an interlocutory injunction sought by the Pacific Telephone & Telegraph Co. to prevent the Oregon Railroad Commission from enforcing its decision rendered on December 5, 1913, requiring the Pacific and Home companies in Portland to connect their systems in the Hotel Oregon for the interchange of traffic. The defendants in the Pacific company's suit for injunction were the Wright-Dickinson Hotel Co., Charles Wright, M. C. Dickinson, Frank J. Miller, chairman, Clyde B. Aitchison and Thomas K. Campbell, constituting the Oregon Railroad Commission, the Home Telephone & Telegraph Co. and the Benson Hotel Co. The case was heard before Circuit Judge Gilbert and District Judges Wolverton and Bean. The decree and the finding of Judge Wolverton follow:

THE DECREE OF THE COURT.

The plaintiff, the Pacific Telephone & Telegraph Co., hereinafter to be called the Pacific company, owns and operates telephone and telegraph lines in a number of the Pacific Coast states, including California, Oregon and Washington, and it also owns and operates a telephone system in the city of Portland. It is a common carrier for hire, and transacts its business partly through local exchanges, including Portland, and partly over long distance lines extending through the states designated. Its system of telephones is known as the manual system.

The defendant, Home Telephone & Telegraph Co., herein called the Home company, is the owner and engaged in the operation of a telephone exchange within the city of Portland. It has no lines of its own extending beyond the city, but in general transacts long distance business over the lines of the Northwestern Long Distance Telephone Co., extending from Corvallis in Oregon, through Portland, and to Tacoma and Seattle, in Washington. This company has the automatic system of telephones.

The defendant, Wright-Dickinson Hotel Co., for several years prior to January 29, 1913, was engaged in conducting and operating what is known as the Oregon Hotel, and at the instance of such company the Pacific company installed in such hotel its switchboard and telephone instruments, and connected the same by suitable trunk lines with its central station in Portland, and moreover furnished throughout said building a complete system of wiring, connecting the said switchboard with the various rooms and other places in said hotel, convenient for the use of the hotel and the public, and affording adequate telephone service to the hotel and its patrons, both locally and for long distance.

Later S. Benson constructed a hotel adjoining the Oregon, the operation and management of which were also taken over by Wright-Dickinson Hotel Co. The new building was, under contract with the Home company, provided with wires suitable for operating a complete system of telephones therein, and thereupon the Pacific company discontinued its use of its wires extending to the rooms in the old building, and sold the same to the Home company, and the latter company connected the wires in both buildings to form one system of telephones throughout, and has since been furnishing its telephone facilities to the Hotel company through its own private branch exchange, and by means of its own wires, switchboard and trunk line.

Notwithstanding this arrangement with the Home company, however, the Pacific company, under contract with the Hotel company, installed in the hotel buildings what is styled a limited telephone service, establishing telephones in the hallways and other semi-public and accessible places, including telephone booths in the lobby of the hotel. This service comprised a private branch exchange, including a switchboard adequately connected by trunk lines with its central station.

About March 20, 1913, the Wright-Dickinson Hotel Co., Charles Wright and M. C. Dickinson, petitioned the Railroad Commission of Oregon to require the Pacific company and the Home company to make physical connection of their respective systems with each other, so that they might be used interchangeably by the hotel and its guests and patrons. After due notice and a hearing, the commission granted the prayer of the petition, and thereafter the Home company made the physical connection by means of a keyboard adjusted between the switchboards of the respective companies.

The commission found, among other things, that "It is entirely feasible from mechanical and technical standpoints to connect the two switchboards of the Pacific and Home companies in Hotel Oregon at a nominal expense so that telephonic traffic can be interchanged between the Pacific company's system and the various telephones of the Home company's system located in such hotel, without impairing the efficiency of service of either the Pacific company or Home company, or any part thereof, and without the necessity for additional investment by any of the parties to this proceeding, and without involving a duplication of equipment and facilities, and without in any way interfering with the competition between such companies."

It was further ordered that the expenses of making the connection should be borne by the Hotel company, and the expense of maintenance equally by the telephone companies. The commission further found that a reasonable compensation to be paid the Pacific company by the Hotel company, and a reasonable toll and charge to be made by the Pacific company for the service to be performed by it through such physical connection, is the sum of 3 1/3 cents for each call going out from such hotel and transferred from the switchboard of the Home company to that of the Pacific company, in addition to the sums now reserved by the existing contract between the Pacific and Hotel companies for private branch exchange service.

The Pacific company resists the order of the railroad commission, and seeks by the present suit to have the commission enjoined from enforcing compliance with the same.

PACIFIC COMPANY'S SUPPLEMENTAL BILL.

Subsequently the complainant filed a supplemental bill, by which it is shown that the Wright-Dickinson Hotel Co. has surrendered to S. Benson the new hotel, and has ceased to operate the same, and that the same is now being conducted by the Benson Hotel Co. as a separate hotel from the Oregon, which latter is still under the management of the Wright-Dickinson Hotel Co. The wiring in both buildings remains as before, and the switchboards remain the same, excepting that a connection has been made between them by Wright-Dickinson company and the Home company, under the order of the railroad commission. The Benson Hotel Co. is oper-

ating the private exchange switchboards described in the original bill, in the new building, in like manner as they were operated by the Oregon Hotel prior to the time the hotels were placed under separate management. In pursuance of the prayer of the supplemental bill and the stipulation of the parties, the Benson Hotel Co. is made a party to the suit, but the relief sought is the same as under the original bill.

DECISION OF DISTRICT JUDGE WOLVERTON.

Two questions of vital concern are presented by the controversy. The first is, whether the Oregon Railroad Commission is authorized and empowered to impose regulation upon telephone and telegraph utilities in the way of requiring physical connection between two or more competing lines, and an exchange of service over such lines; and the second, whether such requirement is the exercise of eminent domain and the taking of property without just compensation, or the taking of property without due process of law, contrary to the inhibition of the federal constitution.

The first question is adequately answered by the provisions of the public utilities act, passed by the legislative assembly of the state of Oregon and afterwards ratified by a referendum to the electorate. Ses. Laws 1911, P. 483. This act has for its purpose the regulation of the public utilities of the state, and the conferring of power and jurisdiction upon the railroad commission of the state to supervise and regulate such utilities. The first section defines the term "public utility," which definition embraces, among others, "any plant or equipment or part of a plant or equipment in this state for the conveyance of telegraph or telephone messages, with or without wires, ... whether said plant or equipment or part thereof is wholly within any town or city, or not."

By the fourth section, the term "service" is taken to be used "in its broadest and most inclusive sense, and includes equipment and facilities." By Section 6, "The Railroad Commission of Oregon is vested with power and jurisdiction to supervise and regulate every public utility in this state, and to do all things necessary and convenient in the exercise of such power and jurisdiction,"—a power and jurisdiction very broad and very comprehensive. The eighth section, which, among other things, relates to common user of facilities, contains this explicit and pertinent provision:

"All public utilities shall afford all reasonable facilities and make all necessary regulations for the interchange of business, or traffic carried or their product between them, when ordered by the commission so to do."

Sections 41, 42, and 43 provide the mode or manner by which the commission acquired jurisdiction to act in the premises, and by the latter clause of section 43 the commission is specifically empowered, if upon investigation it shall be found that any regulation, measurement, practice, act, or service complained of is unjust, unreasonable, insufficient, preferential, unjustly discriminatory, or otherwise in violation of any of the provisions of the act, or if it be found that any service cannot be obtained or is not afforded, to substitute therefor such other regulation, measurements, practices, service or acts, and to make such order respecting, and such changes in such regulations, measurements, practices, service or acts as shall be just and reasonable.

Considering the explicit purpose of the act, and these ample provisions, it would seem that nothing further is needed or requisite for conferring upon the commission adequate power and authority for the regulation of interchange of business between telegraph and telephone companies, which, by the very nature of things, comprises and includes the power to require physical connection between competing utilities for facilitating such interchange of business. In other words, the power to regulate within the purpose and spirit of the act includes the power to require physical connection; otherwise regulation would prove largely ineffectual in practical application. We are not impressed with the suggestion that this power of regulation must be specifically conferred by constitutional authority.. This disposes of the first question.

As to the second question, we are impressed that it is controlled by the authority of Wisconsin, M. & P. Railroad v. Jacobson, 179 U. S., 287, and afterwards reaffirmed in Grand Trunk Ry. v. Michigan Ry. Comm., 231 U. S., 457. See also Jacobson v. W. M. & P. R. R. Co., 71 Minn., 509. In the first case it is said that:

"If power were granted by the legislature, and it amounted in the particular case simply to a fair, reasonable, and appropriate regulation of the business of the corporation, when considered with regard to the interests both of the company and of the public, the legislation would be valid, and would furnish ample authority for the courts to enforce it."

These cases, it is true, relate to a physical connection required by a local commission to be made between railroads, but the analogy to a case where a physical connection is required to be made between telegraph and telephone utilities is patent and obvious. The Pacific company is required to accept the messages from the hotels and transmit them, for which service the commission awards it a compensation of 3 1/3 cents for each call going out from the hotels and transferred from the switchboard of the Home company to that of the Pacific company. For any transmission of messages it may make over its long distance lines it receives its own charges, and for local messages its tolls for instruments installed, in addition to the compensation allowed for the call, and the compensation stipulated for under its contract with the Hotel company for putting in and maintaining trunk lines, switchboards and booths is not interfered with.

The commission has said that the charge of 3 1/3 cents is reasonable for each call going out of the hotels, and with this we are not now concerned.

Now, can it be said that the requirement that the Pacific company shall accept the messages from the hotels and transmit them, it receiving a reasonable consideration for each call, is an exercise of eminent domain and a taking of the plaintiff's property without just compensation?

It is not a new or different use of burden that is required by the service, nor does another or different person, corporation or entity occupy or utilize the lines or system of the plaintiff company. It is still left in the full and unrestricted occupancy and operation of its own lines or system, except that it is required to observe and comply with a regulation that the commission has deemed proper to impose upon it, namely, that it transmit also the messages coming from the hotels, which originate on the wires of the Home company. This is not a taking of the plaintiff's property in any sense. It is but a reasonable regulation which is properly referable to the police power of the state. See Pioneer T. & T. Co. v. Grant County Rural T. Co., 119 Pac., 968; Pioneer Telephone & Telegraph Co. v. State, 134 Pac., 398.

The opposite view is entertained in an exhaustive and ably considered case from California—Pacific Telephone and Telegraph Co. v. Eshelman, 137 Pac., 1119—but we are unable to give assent thereto.

We come all the more readily to our conclusion in view of the decree recently rendered in the district court in the case of United States v. American Telephone & Telegraph Co., *et al.*, and in which the plaintiff herein was a party defendant, whereby, upon assent of the parties defendant, various telephone and telegraph companies were ordered and directed to make physical connection of their systems and accept interchange of business and communication. Thus the plaintiff has in effect conceded the principle we announce.

It follows furthermore that there has been no taking of property without due process of law; nor has there been a violation of the interstate commerce clause of the constitution. See Jackson v. W. M. & P. R. R. Co., Supra.

The Rejuvenation of the Craneville Telephone Exchange

A Serial Story Telling How a Rundown Telephone Plant Was Rebuilt, Enlarged and Changed Successively from a Grounded to a Local Battery Metallic System and Later to Common Battery —Problems Encountered by Every Practical Telephone Man

By Paul Hamilton

Mr. Barrows sat at his desk one evening while the Doctor attended the switchboard. Between calls, there being but few on that particular evening, the latter devoted his attention to a book dealing with electricity. Mr. Barrows had much to stimulate his mental vigor.

Developments in Craneville had been so rapid that his business could scarcely be kept abreast of the tide of progress. If the plant could have been maintained as it stood when the cut-over to a metallic system was completed, his investment would have produced a reasonable profit. While he had not overlooked the probability of having to change to a common battery system, as well as the advisability of re-locating the exchange in a more substantial building, he had not anticipated either consideration to become a live issue in less than five years.

Coming upon him as they did, both within a period of less than two years, he found that the amount of his investment must be almost if not quite doubled with little if any prospect of a corresponding increase in revenue.

Upon a casual appeal to Mr. Rankin for capital he found that the liveryman, while willing to make good his offer, was unable to promise immediate assistance on account of unforseen demands of his real estate and electric light enterprises. With the prospect of the anticipated influx of various manufacturing interests, Rankin had, relying on his own judgment, invested all he could muster, in attractive mill and factory sites, either by actual purchase or upon the option basis. He also had secured control of most of the property available fronting the railroad right of way.

On several occasions, he had suggested to Mr. Barrows the thought to avoid putting all his eggs in one basket; that is, investing everything in the telephone business. "A little gamble in real estate options will make you more money," he had stated, "and furnish your additional capital when the time for improvement arrives."

Mr. Barrows reasoned, however, Mr. Rankin's opinion was not entirely good. By husbanding his resources, he estimated that he would have at least a part of the required funds when they would be needed. The success of the gamble in real estate was far from assured. If it failed, even the small amount necessary to make the few required changes in the plant would form as great a problem as did the outlook for a larger amount at the present time, considering Mr. Rankin's optimistic view of the future for Craneville.

Engrossed with his own thoughts, the telephone man failed to notice a conference was being held in the real estate office of Rankin, which was in an adjoining room. He was first apprised of it when Mr. Rankin came to the door and inquired if he could have a few minutes of his time. Mr. Barrows followed the liveryman into the outer office.

"Mr. Parley—Mr. Barrows. I want you to meet him, Parley, because he is the man to tell you what he will want in the way of pipes, etc., for his telephone cables and wires. Parley is the architect for our new office building."

Without giving the two men more than an opportunity to exchange greetings Mr. Rankin continued:

"I'd figured on your having about half of the second floor—that is, half of the south half."

"The southeast quarter, I presume,'" said Mr. Barrows, much amused.

"Call it that, but Parley thinks you won't need that much room."

"The space he has allotted you is 32 by 67 feet" said Parley. "I told him that, in my opinion, one-half and perhaps one-third of that would be all you would need."

"Speaking off hand, I should say one-third would be nearer the figure. Of course, it would be nice to have space to waste, but it would not be an economical investment. To make your office building pay, you will find it necessary to figure an income from every square foot of available space. My business will not support an inch more space than necessity requires."

"That is what Parley has been telling me—I mean about renting by the square foot," said Mr. Rankin. "He has been clipping corners off of my plans at a great rate. His idea is to build only certain parts of the building permanently and have most of the inside partitions built in to suit the tenants. Then if we want to re-rent afterwards, we can re-arrange the partitions to suit the next tenant."

"That, I believe, is the general practice," said Mr. Barrows. "But a telephone exchange can't be bundled into a wagon and carted around. It must 'stay put' as the saying is. As yet, I am not certain whether the location of the new office building is exactly what I want; I must find the telephonic center and not the business center of the district I am to serve. A small building a few blocks either way might prove more economical."

"I don't get your idea about a telephone center," said Mr. Rankin, questioningly.

"Perhaps I can make it clear. Let this outline (Fig. 88) represent Craneville. Suppose we locate an exchange at *X*. We will use for a basis of illustration ten telephone lines, signifying the location of the stations by *T*. Now we will mark in the length of each line. This gives us a grand total of 21,400 feet of wire or an average per line of 2,140 feet.

"Now we will move the exchange to the east, to *Y*, and number ten stations from one to ten, marking the distance from point *Y*, besides each number. We can now make up a comparative table thus:

Station No.	Old Distance in feet	New Distance in feet
1	1,200	2,500
2	1,200	1,000
3	1,000	800
4	2,000	900
5	3,500	1,100
6	2,500	1,000
7	2,500	1,000
8	4,000	2,500
9	2,000	1,100
10	1,500	800
Total feet of wire.....	21,400	12,700
Average feet per station..	2,140	1,270
Total reduction feet of wire		8,700
Average reduction feet per station		870
Per cent. saving in wire..		40

"This case may be an extreme illustration, but you can get the idea from it. There is as yet no certainty as to whether the main factory district will be north or south. I believe you have options in both directions, Mr. Rankin? Therefore, I cannot say definitely whether any provision should be made for me. In fact, the few changes, which would be necessary, would be of small moment even after the building is completed. It would be merely a matter of taking cables up from

the basement or else in from a pole through the rear wall."

"I can readily see the point of Mr. Barrows' argument," said the architect. "His locating his exchange, or rather relocating it, involves a considerable amount of figuring not only from his present plant, which would not be so difficult, but from a viewpoint of future development of the business.

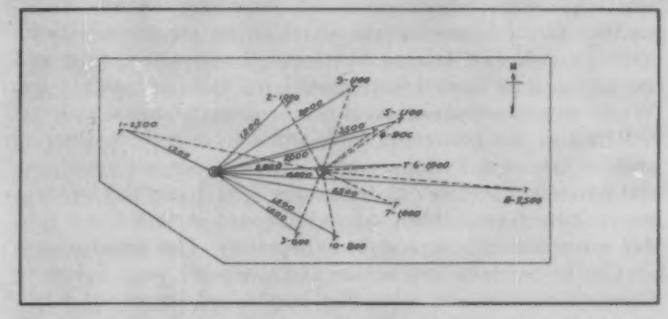


Fig. 88. Outline Showing Wrong Exchange Location.

It might prove out economical for him to buy a lot and build a small building for himself."

"All right, Barrows, I want to see that you are provided for, because this shack is coming down sooner or later," said Mr. Rankin. "Find out just where you want to locate and we'll see what we can do. I didn't know it was such a particular matter. Every business seems to have its peculiarities."

After a few minutes Mr. Barrows returned to his own desk. The problem of deciding upon the proper location for the exchange was one he had given but little consideration. Believing that there would be another day, he soon said good night to the Doctor and left the office.

The result of the impromptu illustration he had drawn up for Mr. Rankin's benefit, had been a surprise, even to himself. He could readily see that the present location of the exchange was "top heavy," so to speak; that is, a larger proportion of wire mileage extended south by east. A location in the new office building would be an improvement over the present, but the distance of removal was not great enough.

As no one could at that time state definitely in which direction future development would turn, he concluded to find the telephone center under the existing conditions and later decide upon the future requirements.

He decided upon a plan and the following day set the Doctor at work upon it.

The first move was the securing of a plat or map of the town, in skeleton, drawn to scale. This he fastened securely to a drawing board. Upon this, Mr. Barrows marked the location of the exchange. Then the Doctor was instructed to draw red lines across the plat, parallel to one another 1/16th of a mile, or 330 feet, apart, and to cross these with similar lines at right angles. These lines were drawn north and south, and east and west, regardless of the direction of streets and alleys.

The exact center of each square was located and lines drawn radiating from the exchange to each center mark. The distance in feet to each center was then determined and marked upon the representing lines. When completed the artificial blocking appeared as in Fig. 89.

After the Doctor completed his work of preparing the chart, Frank was called upon to make the record of stations in each square, by placing dots to represent the number of stations. A part of this work is shown in Fig. 89, in which a little more than 125 stations are located. To move the exchange to the location (*A*) proposed by Mr. Rankin would shorten more lines than would be lengthened. It can be readily seen that a point still farther south would be even more desirable.

When Frank finished his part of the work, the Doctor was again called upon to calculate the average number of feet of wire per station north as compared to south, and east as compared to west. It was found the location occupied was too far west and too far north. This study was not definite as to the exact number of feet the exchange was located from the telephonic center, so that further studies were necessary.

The Doctor devised a method for making several preliminary studies by using transparent tracing paper. With this method it was only necessary to trace new lines from an estimated location and follow through the calculations, securing a grand total footage.

It was finally determined that 1,500 feet south and 400 feet east would be the proper center.

Mr. Rankin's advice was sought as to the prospect of future growth and finally it was decided that the advantages lay with the property owners south. Mr. Barrows then made known the result of his effort to decide where the exchange should be located.

"Whew!" the liveryman exclaimed. "You can't get in over there. That is a resident neighborhood. I live over that way myself."

"Well, wherein would a telephone exchange be considered a nuisance?" asked Mr. Barrows. "It doesn't make any more smoke than any ordinary residence."

"How would that 'spiderweb' pole look on East street? Besides they are agitating getting the poles off that street as well as Main street," Mr. Rankin replied.

"There will be nothing unsightly about the premises. It is as cheap to go in underground on a new proposition. There need be nothing unusual about the building. In fact, if there

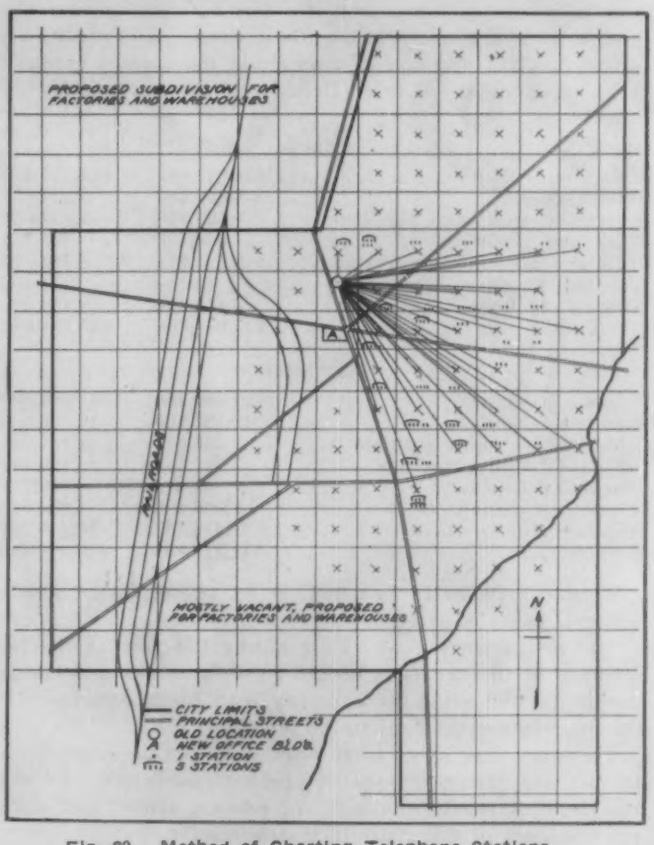


Fig. 89. Method of Charting Telephone Stations.

is a small house for lease or sale in that neighborhood, it would answer the purpose. Germany and Frank coming and going would not be an annoyance to anyone, for they are permitted on any street in town. Of course, a great many people come to the office each quarter to pay their bills, but there is never a rush—you know that."

"Yes," laughed Mr. Rankin. "There's been very little pushing and crowding that I've seen. Well, I'll see what's down

there. A few feet either way, more or less, won't make much difference, will it?"

"Oh, no; anywhere in the block will do, as long as it is accessible from either alley or street."

"All right. Maybe we can fix it up some way."

(To be continued)

Report of New England Telephone & Telegraph Co.

The report of the New England Telephone & Telegraph Co., for the year ending December 31, 1913, which has recently been issued, makes the following statement of income account with figures for comparative purposes, of 1912.

	1913	1912
Gross earnings	$17,672,945	$16,324,305
Operating expenses	7,293,751	6,320,173
Taxes	985,921	1,004,346
Current maintenance	2,086,688	2,379,638
Depreciation	3,521,423	3,151,451
Total expenses	13,887,783	12,855,609
Net earnings	3,785,162	3,151,451
Interest	616,673	345,581
Balance net profit	3,168,488	3,123,115
Dividends	3,015,978	2,810,859
Deduction from surplus	14,920	
Surplus	3,164,084	3,026,484
Total	71,815,868	73,394,446

The company's surplus was charged during the year 1912 with the $1,000,000 credited to the employes' benefit fund and the unamortized portion of discount on bonds sold $294,453; while it was credited the balances in employes' retired pay and accidents $135,204, and the surplus earnings for the year as shown above $312,256; these charges and credits resulted in a net decrease of $848,992 in the surplus account.

The balance sheet as of Dec. 31, 1913, compares as follows:

ASSETS.

Telephone plant	$56,977,689	$52,625,495
Real estate	5,826,799	5,254,729
Furniture, tools and supplies	1,323,468	2,690,002
Cash and deposits	493,520	913,156
Bills and accounts receivable	2,695,975	6,404,719
Prepaid expenses	40,114	41,406
Stocks and bonds	4,458,302	4,464,936
Total	$71,815,868	$73,394,446

LIABILITIES.

Capital stock	$43,085,400	$43,085,400
Bonded debt	12,427,500	12,506,000
Bills and accounts payable	569,814	1,727,991
Accrued liability not due	211,073	190,792
Unearned revenue	42,274	40,777
Employes' benefit fund	1,000,000	1,000,000
Replacement reserves	11,315,723	10,816,991
Surplus	71,815,868	73,394,446

President Philip L. Spalding, in his report to the stockholders, says in part:

"No new financing was done during the year as the remainder of the proceeds of the issue of stocks and bonds during 1912 supplied the company with funds sufficient for the necessary extensions to the telephone plant.

There are now about 4,500 stockholders in the company—an increase during the year of approximately 200. Of the stockholders nearly one half are women, and 87 per cent. are residents of the state of Massachusetts.

On Jan. 1, 1913, the company adopted an employes' pension and benefit fund plan in connection with the American Telephone & Telegraph Co. and other associated Bell companies and set aside a fund of $1,000,000 for this purpose. The payments made to employes during the year total $113,060.

Although the pension and benefit fund has been in existence only one year, the results from the same have been most satisfactory and even the short experience has justified the creation of a fund with its provisions for aiding faithful employes. In the future the payments on account of pensions will undoubtedly constitute a larger proportion of the whole than they did in the first year.

Not only has your property been extended to meet the increases in new subscribers, but many and large improvements have been made to the plant by replacing obsolete and inadequate construction—all necessary to the maintenance of the highest grade of telephone service which the public demands. During the year the new building and switchboard at Lowell were completed and put into service. Work was in progress on the nine-story addition to your building at the corner of Milk and Oliver streets, Boston, and on the new buildings and switchboards for new central office in Back Bay and Roxbury. At Lynn the building was enlarged and additional switchboard installed and similar work was in progress in Worcester. The underground system of conduits and cables and extended from Salem to Gloucester, thus providing for ample and improved facilities for handling the traffic between Boston and the North Shore.

Among all of the employes there has been an increasing endeavor to give good telephone service and it is the opinion of your directors that the friendly relationships which exist between the company and the public indicate that these efforts have been appreciated."

Earnings of Oriental Telephone & Electric Co., Ltd.

The report of the directors of the Oriental Telephone & Electric Co., Ltd., for the year ended December 31, 1913, as given by the Electrical Review, of London, states that including £33,335 brought forward from December 31, 1912, and after deducting the dividends paid November, 1913, on the preferred and common stock, and making the necessary provisions for redemption of the debenture stock and other charges, the amount to be dealt with is £65,213. The directors recommend a final dividend of 3 per cent. (less income tax) for the year on the preferred shares, requiring £1,500; a final dividend of 6 per cent. (free of income tax) on the common shares, making 10 per cent. for the year, requiring £10,759; transferring to reserve account £5,000; to staff pension fund, £2,000; and carrying forward £45,954.

The company's own exchanges all show increased revenues, and the number of new subscribers has reached a record during the past year; similar increases in both subscribers and revenue have also been recorded by all the subsidiary companies. The Bombay Telephone Co., Ltd., has increased its dividend from 10 to 12 per cent., and the Bengal Telephone Co., Ltd., has increased its dividend from 6 to 7 per cent. The Telephone Co. of Egypt, Ltd., and the China & Japan Telephone & Electric Co., Ltd., have paid their previous rates of 10 and 5 per cent. respectively.

To meet increasing business, considerable extension and reconstruction work is in progress at Singapore, the effect of which will, it is hoped, show an important improvement in the revenue at that branch during the current year. The new premises of the company in Port Louis, Mauritius are approaching completion; subscribers continue to join the central exchange in good numbers, and a small sub-exchange has been opened at Rose Hill.

Stock Offer of Cincinnati & Suburban Bell Telephone Co.

With its stock quoted at 200½, or double par value, the Cincinnati & Suburban Bell Telephone Co. has offered its stockholders of record June 15 next, opportunity to purchase 12,743 shares of new stock recently authorized by the state commission, at a par value of $50. Stockholders may buy one share of the new stock at par for every 12 shares of the company's stock held by them on the date mentioned. The stock subscribed for must be paid for in cash on or before July 2. The transfer books will be closed from June 16 to July 1.

Kansas City Convention of Missouri Telephone Ass'n

Two-Day Gathering, May 6 and 7, Attended by 250 Members and Visitors—Guests Welcomed by Mayor Jost of Kansas City—Questions Relating to Public Relations Occupy Prominent Place on Program—Report of the Proceedings

The convention of the Missouri Telephone Association was held at the Sexton Hotel, Kansas City, Mo., on May 6 and 7, with 250 in attendance. The first session opened on Wednesday, May 6, at 10 a. m., with President Houck McHenry, of Jefferson City, presiding. After calling the meeting to order the chairman appointed A. B. Clarke, and M. L. Golladay to escort Hon. Henry L. Jost, mayor of Kansas City, to the platform. The chairman introduced Mayor Jost, who delivered an address of welcome. Dr. S. T. Neill, of Clinton, Mo., responded.

President McHenry then delivered an address in which he gave a synopsis of the growth of the association and the work that has been and is being accomplished. In accordance with a motion by C. J. Myers the chairman then appointed a resolutions committee, naming on this committee H. C. Todd, M. D. Golladay and C. J. Myers. In response to a second motion called for by the chairman, a committee was appointed to submit a set of rules to govern in general the dealings with the public. On this committee the chairman appointed W. W. Johnson, W. H. Bassett and J. L. Hudson.

A. F. Adams called attention, at this juncture, to the paper prepared by H. C. Todd on "The Future of the Telephone," and stated it was something everyone ought to hear, as it dealt with the question of government ownership of telephone properties.

The chairman then made the announcement that a question box would be available for the purpose of receiving questions that the members would like to have discussed by Frank Lathrop, of the Missouri Public Service Commission.

Wednesday Afterncon Session.

At the Wednesday afternoon session the convention listened to the paper by H. C. Todd and a general discussion regarding the government ownership of telephone properties ensued. F. B. MacKinnon, of Washington, D. C., secretary of the National Independent Telephone Association delivered an address dealing with the Interstate Commerce Commission.

Following this address the resolutions committee was instructed to submit a resolution of recommendation to be addressed to the Interstate Commerce Commission asking that body to fix the date of reports so that the fiscal year would end December 31, in view of the fact that this is the date set by the Missouri commission. A. B. Clarke extended an invitation to all present to visit the plant of the Kansas City Home Telephone Co. Mr. Plummer, of Ava, Mo., spoke in regard to the difficulties he had encountered in endeavoring to have his rates raised and of the fact that the farmers are organizing and building exchanges in his territory. Mr. Myers moved that the chairman appoint three men to assist Mr. Plummer. The chairman appointed C. J. Myers, S. T. Neill, and W. W. Johnson.

Thursday Morning Session.

"How to Increase Our Revenue," was the subject of a paper by R. A. Guthrie delivered after the opening of the Thursday morning session. Mr. Guthrie recommended advertising in the directory, installation of burglar alarms, etc., after which a free discussion of the subject took place. Senator Wm. G. Busby, of Carrollton, Mo., author of the Missouri public service commission law, delivered an address on the subject: "Relation of Public Utility Companies to the Public." L. M. Jones, general superintendent of telegraph of the Santa Fe railroad then delivered an address on "Standard Specifications for Railroad Crossings." After discussion by the members present Mr. Schweer moved that the specifications as outlined by Mr. Jones be adopted by the association. This was referred to the committee on rules.

John M. Kinkel, chairman of the Kansas Public Utilities Commission, brought the session to a close with a short and interesting talk.

Thursday Afternoon Session.

At the afternoon session on Thursday Frank Lathrop, telephone expert for the Missouri Public Service Commission, delivered an address on "Our Public Service Law," and answered the questions prepared by the members.

Mr. Lathrop outlined the general policy of the commission as it relates to the telephone companies of the state. "The Public Service Commission of Missouri is not trying to work a hardship on the telephone corporations or trying to find an excuse for penalizing anybody," he said. "The commission is only seeking to adjust all difficulties which arise between the corporation and the patrons to the end that the law may be enforced. Since the commission has been in existence not a single public service corporation has refused to obey or attempted to evade its orders. The spirit of the commission has been the spirit of the law under which it was created—a fair deal for everybody and mutual understanding between the public, the corporations and the state authorities."

C. S. Brown, general manager of the United Telephone Co., of Abilene, Kan., then delivered an address on the subject of "Concrete Poles," illustrating his talk with stereopticon views.

Mr. Schweer moved "that the by-laws be changed so that each company which is a member of this state association will have only one vote." Mr. Schweer wanted, he said, to make the change in the by-law so that every small company in the state will have one vote and as much interest as the large company. Mr. Golladay asked if this was the proper method of revising the by-laws. Mr. Hudson read the by-laws which provided that they can only be revised at an annual meeting. The chairman thereupon ruled to have them taken up at the November meeting.

Mr. Hudson then moved "that the Secretary be instructed to have printed whatever number may be deemed necessary by the president and secretary, of copies of the paper read by H. C. Todd, and also include that part of the article written by Will Payne, published in the Saturday Evening Post of last week, which is germane to this subject, for the general circulation amongst the members of the association." This motion carried.

Mr. Schweer then spoke urging every one in attendance to join the association.

The committee on rules reported that in view of the fact that the rules governing the dealings with the public are for both large and small companies, and are to be submitted to the members of the Public Service Commission before being adopted by the association, it was impossible in such short time to have action taken, and that the committee could not report before the next convention.

The resolution committee asked the convention to express by a standing vote, the thanks of the association to C. J. Myers for the good work he had done in the convention, as well as in the conventions in previous years. This motion carried by rising vote. The convention then adjourned sine die.

The banquet of the association, which was held at the Sexton Hotel, on Thursday evening, was attended by 150 of the members present.

Successful Joint Convention in Pennsylvania.

The quarterly convention of the Western Pennsylvania Independent Telephone Association was held on May 7, 8 at Johnstown, Pa., and over 100 members were in attendance on the first day. President K. B. Schotte, of Kittaning, was in charge, with Secretary H. E. Webb of Pittsburgh. At the first meeting advertising was the subject of discussion. The second day the first joint meeting of the Western and Eastern associations was held, and including the delegates from Philadelphia, a total of 200 were in attendance. From every viewpoint the convention was one of the most successful ever held by the association.

The Coming Tri-State Convention.

One of the most important telephone conventions to be held in the south this year will be that of the seventh annual meeting of the Tri-State Independent Telephone Association, to be held at Jackson, Tenn., May 19 and 20. This association was formed by the union of all of the Independent telephone companies operating in the states of Mississippi, Alabama and Tennessee. The convention will hold its sessions at the Southern Hotel in Jackson, one of the best known hostelries in the south, and a large attendance is expected. W. S. Vivian, secretary of the Independent Telephone Association of America, and F. B. MacKinnon, secretary of the National Independent Telephone Association, will be among those who will discuss before the convention many important subjects of vital interest to every telephone official. An important matter to be discussed will be the much talked-of compromise between the Bell company and the Department of Justice. This question will be discussed by Albert Partlett, of Bristol, Tenn., and Terry W. Allen of Jackson, Tenn.

One of the most interesting features of the entire convention will be the exhibits from the leading manufacturers of telephone supplies which will be placed in or near the convention hall for the inspection of those who attend. All of the leading manufacturers of telephone equipment in the United States will have exhibits on hand and will spare no labor or expense in having these exhibits not only complete in detail, but conveniently arranged for public inspection.

Camp Club of Telephone Men in Oklahoma.

Executive officers of the Pioneer Telephone & Telegraph Co., in all of its exchanges in Oklahoma, are being encouraged by their superiors to keep up their play as well as their work as they advance in years.

During the past five years, a dozen or more of the superintendents of exchanges have maintained a club and outing camp on the picturesque Illinois River in the Cherokee hills of northeast Oklahoma. Now these club members are buying tracts of land scattered along the river, fractional bits of Indian allotments, for the purpose of establishing permanent summer camps, or building cottages eventually. The outing system is being encouraged by the management of the company as one of the best methods of promoting efficiency and maintaining executive ability.

The camping club of telephone men owns an elaborate camp establishment. It is opened early each season and kept running until all the members have had their annual vacations.

Effect of Bell-Independent Agreement at Osseo, Mich.

Subscribers of the Michigan State (Bell) Telephone Co. in Osseo Mich., and vicinity, will have their telephones removed by order of that company at the expiration of present contracts. At a meeting in March an arrangement was effected between the Bell company and the Independent company, the Hillsdale County Telephone Co., operating from centrals at Osseo, Pittsford and Ransom, by which all messages intended for the Bell line, including long distance messages coming from the Osseo vicinity must go to Osseo central over the Independent line for farther transmissal over the Bell, both companies receiving a part of the fee. Likewise messages originating on the Bell line for Osseo parties reach Osseo over the Bell and are then sent over the Independent, both companies also sharing the fee.

Telephone Growth in Cuba.

Figures published by the Cuban Telephone Co. show the growth of that system since the concession for its operation was granted, in September, 1909. On January 31, 1914, the company had 16,053 subscribers, as compared with 11,889 on the same date last year, 8,500 in 1912, and less than 4,000 in 1910.

This company now has lines connected with 190 cities and towns. Since the installation of automatic service in Havana, in October, 1910, there has been an average monthly increase of 300 subscribers, and this increase is growing larger, as for 1913 the gain in subscriptions was more than 4,000. One of the important factors in the business of the company is the connecting by telephone lines of the many sugar plantations.

Oil and Telephone Boom at Ardmore, Okla.

The almost unprecedented oil activity at Ardmore, Oklahoma, and the attendant influx of population to that city and vicinity was responsible for added demands upon the Pioneer Telephone & Telegraph Co., which were too much for immediate satisfaction, even by the general office plant at Oklahoma City. Toll line business increased wonderfully. More money was paid into one booth in one day recently, than was ever taken in under similar conditions in any previous day in the state. A considerable number of Pioneer officials visited Ardmore in connection with the additional equipment being installed.

Milan-Berlin Telephone Installation.

The telephone installation between Milan and Berlin, having proved an entire success, the line has now been extended to Rome. Nine provincial Italian towns have moreover, been connected, so that Berlin is now linked with the following towns in Italy: Rome, Milan, Brescia, Genova, Pavia, Venice, Bergamo, Novara and Turin.

The greatest distance is between Berlin and Rome, namely 2,015 kilometers. The charge for a three-minute call is a comparatively small one. For any of the first five of the provincial towns, it is 4.50 marks, to Milan and the other four towns 4 marks, to Rome 5 marks.

The Telephone in Mexican Warfare.

General Velasco, the commander of Torreon during the siege of that city by Villa and his men, had the unusual experience of being requested to surrender over the telephone. Toward the end of the fighting about the city, were connections were made between the attacking and defending forces, and General Villa on one end and General Velasco on the other held an interesting conversation.

Practical Subjects—Letters and Discussions

Concerning Collections by Mail.

Begin with the envelope, says Hobart J. Parsons in The Bulletin of the Federal Telephone & Telegraph Co. Blank ones are preferable, with the company's address on the back, written small. Time and time again we have found that the letter has been thrown upon the desk without having been opened, just because the party knew who the letter was from, and postponed trouble.

The Commands of a Soldier Become the Demands of Business.

ATTENTION!	Yours! Ah 'tis Ours.
READY!	Confident that you are. Pocketbook wide open. Only necessary to bring the matter to your attention.
AIM!	Ours, to give you good service. To do so we must have the sinews of war.
FIRE!	Bang! If you mail your check now, we have made a Bull's Eye.

The Letter.

In the first paragraph of the letter attention must be secured. If not, halt! No use to go any further. No matter what the arguments are in favor of the payment of the bill, if the letter goes into the waste basket.

In the second paragraph, you make the reader feel sure that he is ready to pay. Possibly, through carelessness, the bills have been overlooked. The party who does the paying, perhaps, has been out of town. Innumerable little reasons may be noted all carrying the idea that you are confident that the person is ready with the remittance, and all that is needed is to bring the matter to his notice.

In the third paragraph you aim short, sharp arguments why the account should be paid.

The fourth paragraph should be the clincher. It should be short, "Confident that we will receive check by return mail" is preferable to "Trusting that you will be able to give this matter your favorable attention, and will send us your check." Do not give the reader time to reflect. Put the "Do it now" into effect.

The foregoing applies to the first letter of a series, or if only one is to be sent out. This brings in remittances from those who will pay as soon as the matter is brought especially to their attention. In a series, each succeeding letter should be stronger. Each consistently playing upon those characteristics of the person, which would be most apt to make him see your point of view.

Is he a cautious man? Warn him on his loss of credit standing. Is he a man who usually takes pride in keeping his account paid up? Call his attention to the fact that he has always kept his accounts paid up, and trust that he will continue to do so.

A collection man must have a wide knowledge of the human instincts. His work ranges all the way from preacher to detective, and he must handle these vocations well.

Many schemes have been worked out, which have been successful in arousing the curiosity of the delinquent, which sometimes is the only method by which he can be made to read a letter and mail his check. One firm increases the size of the envelopes with each succeeding letter, until with the fourth, the post office limit is reached. Another firm makes a record of the bank on which a check is drawn, when the delinquent finally pays up. This information is placed upon a card in the credit man's file, and when it becomes necessary to ask for more money, a check is filled out and enclosed, with a polite request to sign and return.

This bank check information is also very valuable in the detective work, which sometimes devolves on the credit man in locating a party when he leaves for parts unknown with his account unpaid.

Remember that the person to whom the letter is sent is busy with his own business, and it is up to you to use the idea which will break down that wall of indifference which seems to surround nearly all of mankind when it comes to payment of a bill.

Letters to His Old Boss.

Bessemer Hump.

My Dear Pinder:

You can bet I was glad to see the Dobson girls. It seems one of them is some business woman. She had a few shares of stock in a mine about 50 miles up the gulch. I went up with them to look over the layout. If you know the fellow who sold her that $12 worth of stock, you'd better warn him to get under cover. There was nothing but a sign and a hole in the side of the mountain. Effie was favorably impressed, anyway. She said she would come out and run my exchange for me any time I need a chief operator. If I don't sell out I shall call on her to make good next spring.

"Well, Pinder, we came to a partial agreement on pole valuation. I finally agreed to let them put in the 47 poles on Main street at $10—including the fixtures. That night the powers passed a bill condemning the 47 poles and directing their removal within 90 days. So we are back where we started from again.

Of course, we took the matter up at the next meeting—or rather I did.

"Well," I said, "how about the 47 poles now? Do you think it right to put a $10 valuation on them?"

"In my way of thinking it isn't so much the standing or passing value of the poles as their earning capacity," the lawyer answered. "Let us presume that a $10 valuation of those poles is equitable. Now they must be removed, but you will replace them with something, the earning capacity of which will be equivalent."

"As a separate proposition," I said, "the equivalent, or replacing construction, will not actually cost what the pole line did. But I don't favor your plan of taking the earning capacity as a basis for an assessment. Do you do that with merchants, with the railroads, or the farmers down in the valley?"

"No, we don't. It's an idea we just thought of to fit your case which has been such a puzzle to us."

"Well, then," I said, "The matter is easily settled. I can prove to your satisfaction that I did not make a dollar last year, and don't know that I will this year."

"Now, gentlemen," the lawyer went on, "how was this valuation arrived at last year?"

"Just the same way they came to an understanding about Bill Smith's farm," I told him. "The assessor came in, exchanged a few stock yarns with me and we decided about what we thought was right."

"It was not an established fact then? That is, it was not the result of any method of calculation?"

"No. There was no appropriation to pay a man for devoting a great amount of time to any one item or person on the list," answered the chairman.

"It looks to me," said the lawyer, "as if we have no base

to start from. Last year's listing was merely a matter of guesswork."

"Can't we get at it this way, if going over the schedule we have made up takes too long? Mr. Dudley has put a certain amount of money into the plant during the year. We at least have that amount to start from."

"That gives me an idea," said the lawyer. "Mr. Dudley, can you state with any degree of accuracy, what portion of the plant has been replaced during the year? How much you have expended on permanent improvements?"

"I can give you very accurate figures. But the only ones that will be of service to you, will be the portion charged to, and covering, plant extension."

"Don't repairs and replacements put a new value on that part of the plant where they are made?" the chairman inquired.

"They do and they don't," I told him. "In maintaining the plant and supplying service, it may be considered so. But not for the purpose of assessment."

"I don't see why. If it's worth more to you, you ought to pay taxes on it."

"But you see the valuation last year was normal; that is, the poles which I replaced this year were assessed at normal value. That was more than their actual value to the plant as a whole."

"Then," said the lawyer, "you maintain the same rating should apply plus the actual plant extensions?"

"That is about it."

"Well," the chairman asserted, "you've already said that poles cost more each year."

"I assume that fact. But at the same time we telephone men have to find methods and means of overcoming additional costs; our rates don't increase every year, so I can't understand why the taxes should."

There was a lot more talk for and against. It was getting along toward the peak of the afternoon and some of the silent members of the committee were anxious to get back to their regular jobs. Finally, one of them, a youngish looking chap, who had been amusing himself looking over some obsolete catalogues, butted into the argument.

"I see here," he began, "a price list for poles of different kinds and lengths for 1914 delivery. I've been figuring a little Now the average price per foot of pole for all kinds and lengths is so much. Why not figure up how many running feet of poles Mr. Dudley has and use that as a basis?"

"But that list refers to new poles," I said.

"Well, we can depreciate your poles very easily. A great many of your poles have been replaced; plant extensions have been made of new materials quite extensively during the past two years. Suppose we price your poles at half the value of new ones? How about taking the average of this list and splitting it two ways? Throw one-half away and call the other a just assessment?"

Well, that put a new angle on the thing and they asked me to show the number of feet of poles I have in the plant.

It looks to me like the best scheme they have tried yet. There won't be much chance to put over a rough figure on them, for they can go out and count the poles and measure them any time. What do you think of the plan?

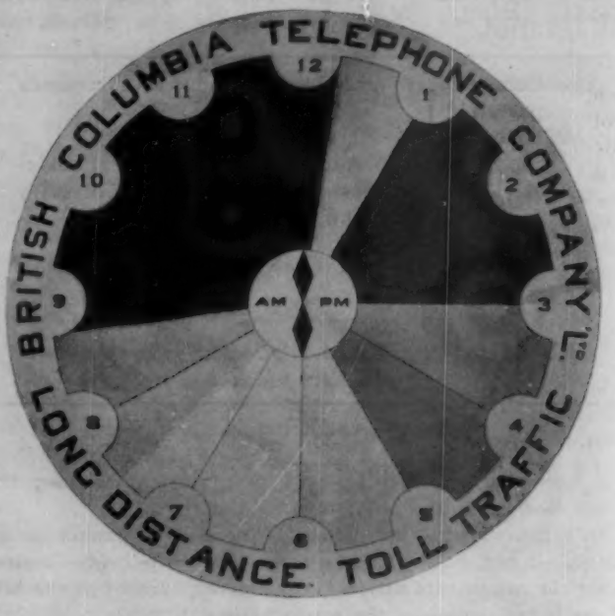
Yours truly, Little Dudley.

A Long Distance Traffic Promoter.

A blotter has been printed by the British Columbia Telephone Co. for distribution among its patrons, according to an item in a recent issue of Telephone Talk. The blotter carries a diagram showing the busiest long distance hours, and a suggestion that perhaps more prompt service can be given during other hours of the day. By reference to the diagram telephone men will perceive the value of the blotter's suggestion.

It will be noted that the heavy loads are carried from 9 o'clock in the morning to 12 noon and from 1 in the afternoon to 3 o'clock. Those are the business hours, and naturally during that time the long distance calls are the most numerous.

The object in sending out the blotter is for the information of people who may have calls to place, but which are not rush calls. It is pointed out that if these calls are put in during hours when the load is lighter on the wires, the service is all that can be desired. The statement on the blotter is:



Design Used on Blotter to Show Toll Traffic.

"The dark shaded portions of this diagram denote the periods of the day when long distance traffic is heaviest. Long distance calls can be completed with greater dispatch during hours when traffic is lighter. Appointments to talk at a later time may be made at any time of the day, and the person calling will be advised by the long distance operator whether the appointment is satisfactory to the person called."

Free Vacations for Cincinnati Operators at Hazelhurst.

In order to afford a place where its telephone operators may go for their vacations without expense to them and where they may convalesce in time of sickness, the Cincinnati & Suburban Bell Telephone Co. has purchased "Hazelhurst," a famous old countryside estate, near Cincinnati, Ohio. The building, which is located in the center of a 10-acre tract of rolling ground, is "T" shaped, with more than 40 bedrooms, and a porch running the entire length of the house. It has been remodeled by the company for its new purpose.

Hazelhurst is located in the midst of fruit orchards and has all modern conveniences including gas, electric lights, city water and steam heat throughout. It will be open winter and summer and will be in charge of a matron. About 50 girls will be accommodated at a time. A tennis court and other means of recreation have been provided.

Telephone Men in A. I. E. E.

The May issue of the Proceedings of the American Institute of Electrical Engineers reports that at a recent meeting of the board of directors Thomas Shaw, engineer, American Telephone & Telegraph Co., New York, and John N. Wallace, electrical engineer, Bell Telephone Mfg. Co., Antwerp, Belgium, were elected members of the institute. At the same meeting the following associates were elected: James G. Patterson, assistant engineer, New England Telephone & Telegraph Co., Boston, Mass.; Winfred T. Powell, telephone engineer, Automatic Electric Co., Chicago; and Charles H. Stegmaier, salesman, Central Union Telephone Co., Indianapolis, Ind.

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities and Actions of City Councils Bearing Upon Franchises, Rates and Service

Kansas Telephone Management Inefficient, Says Kinkel.

John M. Kinkel, chairman of the Public Utilities Commission of Kansas, believes that all telephone and electric light companies of the state, no matter how or by whom controlled, should be placed under the jurisdiction of the commission and says that the next legislature may be asked to make such provisions. Mr. Kinkel has direct supervision of the telephone companies that are placed under the jurisdiction of the commission by the present utilities law.

According to Mr. Kinkel, the proposed provision or change in the laws would result in increased efficiency of service, more uniform charges for services and better business management of such companies. Commissioner John A. Cable approves a provision that would bring electric lighting plants under the jurisdiction of the commission, no matter by whom owned or controlled. Such an amendment to the law would eliminate the home rule provision of the utilities act.

The following "indictment" of Kansas telephone companies is made by Mr. Kinkel:

There are 500 telephone companies in the state. These are of all kinds and of all sizes. Nearly 80 per cent. of them, I should say, are inefficiently managed, or really not managed at all. There is every variation in the class of service rendered from the worst to the best. Several hundred of these companies really don't know whether they are running at a profit or loss, whether their charges are too low or too high, or whether they are keeping the plant always near a maximum of efficiency at a minimum expense.

The prices vary as greatly as the service given. There are companies that pay their managers $50 a year to manage all the business of a concern with 300 telephones in actual use. There are companies that are charging some customers 50 cents and others $1 per month rental for the same service. One company I know of, had $1,200 due in rentals and the officers went out and borrowed money to make needed repairs instead of trying to collect the money due it.

Inefficiency in the management of telephone companies and other utilities every year is costing the customers, or consumers good hard cash that never should have to be spent. There are companies which have been operating for five years that have never spent a dollar for betterments and never have hired a skilled man to make repairs. If a wire blew off the pole some farmer was told to put it back.

The lack of efficiency in management in the small utilities of Kansas simply is ruinous and ought to be stopped, because the customers are paying dearly for this inefficiency, and the persons who have invested money in the properties are losing heavily.

Mountain States Company Granted Supersedeas.

The Colorado Supreme Court recently granted a supersedeas staying the order of Judge Dennison which required the company to remove its poles from the city of Denver within 90 days. The stay means that the entire case will be reviewed by the supreme court.

Arbitration Decision at Watertown, S. D.

The board of arbitration appointed to adjust the differences between the city of Watertown, S. D., and the Dakota Central Telephone Co., has adopted the schedule of rates demanded by the Dakota Central Telephone Co., by a vote of 2 to 1. The dissenting vote was cast by Clyde Reed, representing the city. The other members of the board were John Moodle, for the company, and W. F. Sloan, of Madison, Wis., an expert for the Wisconsin public utilities commission, who was chosen by Reed and Moodle. The work of the arbitration board was that of appraising new automatic plant just completed and fixing a rate which will return the company 8 per cent. on its investment. The majority report holds that the company is entitled to $3 per month for business telephones, $2 for main line residence and $1.50 for party line telephones.

Decision on Terminal Fees in South Dakota.

The South Dakota statute governing telephone charges provides in substance that the charge for toll messages shall include an originating fee payable to the local exchange handling the call and a terminal fee payable to the local exchange handling the call at the delivering end. It also provides that all terminal fees for incoming and outgoing toll messages shall be uniform and shall not exceed five cents.

In a recent case decided by the South Dakota Railroad Commission the Farmers' Mutual Telephone Co., operating an exchange in Iroquois, from which it had built a line affording connection with the local exchange of the Nebraska Telephone Co., contended that it should receive the five cent fee for its service in handling the toll messages between its subscribers over its connecting line with the Nebraska Telephone Company's exchange. The dispute over the matter resulted in the Nebraska Telephone Co. refusing to continue the service. The commission decided that the service must be continued but that the fee belonged to the Nebraska company and that both the fee and toll charge must be guaranteed to it by the Farmers Mutual Telephone Co., and be accounted for and paid monthly.

The Nebraska company contended during its argument that the commission had no jurisdiction because the exercise of its jurisdiction on the complaint would be an interference with interstate commerce. The decision of the commission does not discuss this contention.

Chamber of Commerce View of Hastings, Neb., Merger.

The proposal of the Lincoln Telephone & Telegraph Co. to consolidate the manual and automatic exchanges at Hastings, Neb., which is under favorable consideration by the Nebraska Railway Commission, has been the subject of investigation by the chamber of commerce of Hastings. A committee representing that body has filed with the commission a brief in which it makes no objection to the general plan of consolidation but enters protest against the proposed advance from $3.50 to $4.50 per month in the rate for individual business telephones and from $3 to $4 per month in two party line business service.

The committee also objects to a 25-cent discount arrangement, declaring that such amount becomes a penalty and not an incentive to payment. It is declared that those who do not pay in time should be cut off from service and that the accumulation of bills and their subsequent charging off, leads to direct rebating and discrimination, as well as unwarranted expenses. It is further petitioned that, if the commission considers a discount proper, the gross rates be 15 cents above net for business telephones and 10 cents above for residence and farm telephones, the discounts to be for payment on or before the 10th of each month. A proposed additional charge of $5 per year for one party and $3 per year for two party service, for each quarter mile or fraction thereof, metallic circuit outside the city limits where there is an existing pole line, is declared to be too high. The brief makes a detailed com-

parison of the property of the two systems, the service furnished, the rates, earnings and expenses and concludes that the consolidation will materially increase the net receipts of the consolidated company.

It is further declared that toll rates between Hastings and towns within a radius of 20 miles are too high and it is recommended that the toll line rate be fixed at not to exceed one-half cent per mile air line distance. It is urged that the company should be allowed to earn reasonable dividends on its actual investment in the consolidated plants and no more. The committee thinks that the proposed 6.7 per cent. depreciation charge asked for by the company is excessive. In commenting upon this subject the brief proceeds on the theory that the company, in setting aside a fund to reproduce its property, is merely a trustee of the people's money. It is argued that a 6 per cent. annual depreciation charge reinvested at 4 per cent. semi-annually will reproduce the property in 13 years. The consolidated exchange, it is stated, will have upwards of 1,750 subscribers in Hastings.

In conclusion it is stated that the monopoly had, and process for establishing rates guarantees the company's investors sufficient dividends, while the complete standardization of telephone equipment makes improbable any charges through obsolescence. Under these conditions, the company, "being relieved of all ordinary risks," is entitled, it is declared, to earn and pay as dividends only such interest rates as are current on the best securities, namely 5 per cent. on preferred stock and 7 per cent. on common.

Telephone Rulings of Illinois Commission.

A study of rulings that have been made by the Illinois Public Utilities Commission since its organization in January should give telephone men sufficient assurance that their business is not to be hurt, but rather helped, by the application of the state utilities act. The commission has shown its determination to act fairly towards the companies, and not only have rates not been reduced, but a number of increases have been granted. The only petition on which a certificate permitting the organization of a company was denied was in the case at Bethany, where there was already a satisfactory service, and the commission held that the telephone business should be a natural monopoly in any city. A review of some of the findings in telephone cases shows the attitude of the commission.

The Citizens' Telephone Co., of Lawrence county, has been given permission to increase its rates on business telephones from $2 to $2.50 a month, residence telephones from $1.25 to $1.50, residence two-party lines from $1 to $1.25, and business and residence telephones on the same line from $3 to $3.75.

The Merida Telephone Co., of Belleview, Hamburg and Kampsville, is permitted to fix rates as follows: Residence, telephone owned by user, $10 per annum; residence, telephone owned by company, $12; business, $18; physicians, $18 per annum.

The Mt. Auburn Telephone Co. has been permitted to increase its rates as follows: Business (private line), from $12 to $18 per year; business (party line), from $12 to $15; city residence (private line), from $12 to $15; city residence (party line), remains at $12 as under old rate; rural (discount one-fifth if paid quarterly in advance), from $12 to $15; mutuals switching, per year, from $4 to $6.

The National Telephone & Electric Co., of Clinton, was permitted to raise the rates of 80 subscribers who have been paying $12 a year for residence telephones because they owned their instruments. In the future they will be compelled to pay $18 for wall telephones and $20 for desk telephones the same as other subscribers. The commission held in this case that the ownership of the telephone by the subscriber should not affect the rate charged for service.

The Queen City & Shelby County Mutual Telephone Co., of Shelbyville, was ordered to increase the rates of all subscribers of stock who have been getting their telephone service for $12 per year. In the future they will pay $1.10 per month for residence telephones, $1.60 for business telephones and 50 cents for extensions.

Besides these, there have been a few minor orders. The Citizens' Telephone Co., of Pekin, secured a certificate of convenience and necessity to establish an exchange in South Pekin; the Christian County Telephone Co. secured permission to establish an exchange in New Kincaid, and the purchase of the Grafton Telephone Co. from Paul S. Carpenter by John C. McDonald was approved.

Franchise Situation at Berkeley, Cal.

The Pacific Telephone & Telegraph Co. recently rejected the proposal of the city of Berkeley, Cal., that the telephone company pay 2 per cent. of its gross earnings for the four years in which the non-payment franchise has yet to run and that the company also pay 2 per cent. of its earnings for the past two years. In the event of acceptance the city was to stop legal action and to allow the company, in 1918, to take over the Home franchise which provides for the 2 per cent. payment. The case was threshed out in the superior court with a victory for the corporation and an appeal was taken by the city.

The city council of Berkeley, Cal., has requested the Pacific Telephone & Telegraph Co. to submit detailed figures of its earnings and expenditures. Upon receipt of a recent statement from the company showing operating revenues in the city to have been $264,805 in 1913, Mayor Heywood declared his opinion that this was too large an amount for the plant investment in the city and that a charge of $7 to $8 per month for business telephone service was exorbitant. The foregoing action by the city council was taken as a result of the mayor's statement.

Michigan Bell to Improve Detroit-Battle Creek Toll Line.

For the purpose of increasing long distance telephone facilities between Detroit and Battle Creek an expenditure of $25,000 has been authorized by the Michigan State Telephone Company. The increase in wire mileage between the two points will be 300 miles. One new through route will be established from detroit to Battle Creek and another to Albion. Two additional circuits will also be built between Marshall and Battle Creek

The new lines will be of heavy copper wire, the total amount required weighing 26 tons. Between Battle Creek and Marshall the existing long distance route will be rearranged so as to improve the voice transmission qualities of the circuits.

Physical Merger of Bell With Independent at Joplin, Mo.

The completion of the physical merger of the Home and Bell telephone systems in Joplin, Mo., was effected on May 2, the Home Telephone Co. becoming the sole operating system in the field. The merger was approved by the Missouri Public Service Commission several months ago and preparations for it have been in progress since the order was issued.

A number of the officers of both companies were near the switchboard of the Home Telephone Co. when the cut-over was made. They included A. F. Adams, vice-president; W. H. Warren, secretary and treasurer, and W. O. Randall, general superintendent of the Home Telephone Co., and the heads of various departments of both companies. The switchboard, which accommodates 5,000 subscribers, is located in the building which was formerly used by the Bell exchange and which has been remodeled by the Home company. Improvements costing about $125,000 were made. The result of the merger and expenditures is a system that is modern in every respect.

Rates under the new system will be the same as those charged in the past by the Home Telephone Co. This will in-

crease charges to former Bell subscribers 50 cents a month, but gives them communication to over 5,000 in place of about 2,000 subscribers which they had before.

Few will be thrown out of work as a result of the consolidation and they will be only those at the head of departments. Practically the same number of operators and other employes employed by both companies in the past will be employed by the one company in the future. The Home company will give up its present quarters at 419 Joplin street. Its officers and employes will be housed in the remodeled building.

The Bell company will henceforth maintain offices in the Miners Bank Building. The consolidation did not take from this company its long distance business, but all distance calls received by the Bell, the Kinlock Long Distance Telephone Co., or the Home Company, will be handled at the switchboard of the Home company.

Authorization of St. Louis Increased Rates Deferred.

The Missouri Public Service Commission has deferred authorization of the proposed increased rates of the Southwestern Telegraph & Telephone Co. for a period of six months from May 1. These proposed rates were suspended on January 1 for a period of 120 days to give the commission time in which to make its investigation as to their reasonableness. The commission has not yet determined whether the company is entitled to increase its rates, hence the new rates will be suspended for a period of six months more or so much of that time as may be necessary for the commission to conclude its investigations.

Damage Case Decision by Nebraska Supreme Court.

The Supreme Court of Nebraska has decided the damage case of Coen against the Central Telephone Co. The law of the case was announced. A telephone company is required to maintain its line where it crosses the pasture of another at a sufficient height and in such a condition as to prevent injury to persons and domestic animals."

The death of a person may be shown to have been caused by negligence on the part of a telephone company in failing to properly construct and maintain its wires, and circumstantial evidence on this line is admissible.

Minnesota Company Cannot Condemn Land in Wisconsin.

Judge Charles Smith, of Superior, Wis., recently denied the application of the Tri-State Telephone Co. for the right to condemn a right of way for its toll lines across lands owned by Mrs. Sarah Sheehan, south of Middle River, Douglas County, Wis. The company is a Minnesota corporation and therefore cannot condemn lands in Wisconsin, the court held. The company desires the right of way for its new long distance line to the Twin Cities via Spooner.

Providence, R. I., Now Scene of Extra Cord Campaign.

Councilman E. Merle Bixby, of Providence, R. I., recently introduced a resolution in the city council of that city to make it possible for telephone users in Providence to have longer cords attached to their telephones for convenience. Mr. Bixby wants the telephone company to allow each subscriber as much cord as he desires, without any extra charge to the subscriber. His resolution was referred to the special committee on telephone franchises.

Interview With L. C. Griffitts of Seymour, Ind.

The Seymour Mutual Telephone Co., of Seymour, Ind., is planning extensive improvements to its plant, including underground construction for all service wires and the installation of a new automatic ringing system for which experts are now making blue prints. This will give to Seymour one of the most modern telephone systems in the country. L. C. Griffitts, president and consulting engineer of this company, was formerly manager of the Interstate Independent Telephone & Telegraph Co., of Aurora, Ill. In speaking of the Seymour company he said:

"It is one of the five controlled by practically the same organization, and in all my telephone experience I don't believe I have ever seen a city with as well a constructed plant giving such excellent service at such reasonable rates.

"Under the law creating the Indiana Public Service Commission no other business is so completely out of the control of its owner and belonging practically to the people as the telephone business. They tell us just what documents to destroy and when they may be destroyed. Their laws are so stringent we are compelled to employ a commercial accounting expert and install an expensive and elaborate accounting system to prevent the transgression of any of these rules. While my money is invested in this business, I do not have very much to say as to how it shall be handled. I absolutely cannot make a change of any kind without consulting and obtaining the consent of the state and the people of Seymour. No town in the state of Indiana with as many as 1,000 telephones is receiving a telephone service at the low rate patrons of this company are."

Taxes on Uncollected Bills.

The Northwestern Telephone Exchange Co., of Minneapolis, Minn., agreed, at a recent conference with the Minnesota attorney general and state tax commissioner to pay taxes on $66,494 of uncollected telephone bills. The telephone company agreed to pay the state a total of $4,626 in taxes on gross earnings omitted from its annual returns for the past four years.

Denver Committee Inspecting Indiana Automatic Systems.

A committee representing the Denver municipal telephone eague is inspecting the automatic telephone systems throughout the state of Indiana.

Summary of State Commission Hearings and Rulings.

CALIFORNIA.

April 27: Arrangement made by the commission with the Pacific Telephone & Telegraph Co. for the installation in apartment houses of individual telephone service. The matter came to the attention of the commission through J. W. White who represented that he was limited to service through the apartment house system.

May 7: Decision authorizing the Roseville Home Telephone Co., of Roseville, Placer County, to transfer its system to the Roseville Telephone Co. for $11,000 in stock of the latter company.

IDAHO.

May 4: Settlement of controversy between several of the telephone companies of Soda Springs and vicinity, which desired to extend their territory. The Soda Springs-Lago Telephone Co. sold its interests to the Gem Valley Telephone Co., and certain concessions were made to the Smith Telephone Co.

ILLINOIS.

May: Order permitting the Citizens Telephone Co., of Lawrence County, Ill., to increase rates.

May: Order permitting Merida Telephone Co. of Belleview, Hamburg and Kampsville, Ill., to establish rates.

May: Order permitting the Mt. Auburn Telephone Co., of Mt. Auburn, Ill., to increase rates.

May: Order requiring The Queen City & Shelby County Mutual Telephone Co., of Shelbyville, Ill., to increase the telephone rates of stockholders.

May: Order permitting the purchase by John C. McDonald from Paul S. Carpenter, of the Grafton Telephone Co.

May 1: Hearing by Commissioner Yates at Edwardsville, Ill., on the petition of the Leef & Vanderbrook Telephone Co., of Alhambra, Ill., for an order requiring a common switchboard to be operated by complainant and the Alhambra Mutual Telephone Co., in Alhambra.

May 5: Hearing at Springfield before Commissioner Yates on application of the Canton Home Telephone Co., of Can-

ton, Ill., for approval of increased rates of $1.50 for single party residence telephones and $2.50 for business telephones. Mr. Yates stated after the hearing that he would recommend to the commission confirmation of the rates.

INDIANA.

May: Petition to be filed by the Lafayette Telephone Co., of Lafayette, Ind., for permission to double its capital stock, making it $300,000. It will use $80,000 in taking up preferred stock and the remainder in completing physical improvements. The company has been in existence 15 years and has 4,700 telephones in use.

KANSAS.

April 14: Docket No. 745. Order dismissing without prejudice the application of the Coffey County Telephone Co. and the Lebo Home Telephone Co., for permission to increase certain toll rates.

April 10: Docket 755. Order authorizing The Victor Telephone Co., of Victor, Kan., to engage in business as a public utility, to continue the present system as owned by F. M. Ewing, at Victor, Kan., and to issue its common stock in an amount not exceeding $10,000, divided into 2,000 shares at $5 each to be sold at par.

April 9: Docket No. 756. Order dismissing without prejudice the application of The Sylvan Grove Telephone Co., of Sylvan Grove, Kan., the Vesper Telephone Exchange of Vesper, Kan., and the Lincoln Telephone Exchange, of Lincoln, Kan., for permission to charge 5 cents terminal fee for all calls between certain stations. The two last-mentioned companies withdrew their application before hearing. Testimony offered by the Sylvan Grove Telephone Co. was heard, but dismissal of the application was by mutual agreement of the parties interested.

April 10: Docket No. 757. Order authorizing F. M. Ewing, of Victor, Kan., to sell his telephone plant and property located at Victor and Vesper, Kan., and vicinity, and known as the Victor Telephone System, to the Victor Telephone Co.

April 7: Docket No. 759. Order consenting that the telephone plant and property at Olsburg, Kan., of the Westmoreland Telephone Co., of Westmoreland, Kan., be sold and transferred to Ross Walker, of Olsburg, and granting him permission to purchase.

April 30: Docket No. 760. Order consenting that the telephone plant and property of the Westmoreland Telephone Co., at Wheaton, Kan., be sold and transferred to C. R. Huggins, of Wheaton, and granting him permission to purchase.

April 30: Docket No. 789. Order consenting that the telephone plants, toll lines and all telephone property used in connection therewith, located at Valley Falls and Meriden, Kan., and vicinity, and owned by Minnie Ralph, be sold to Charles Vavra and C. V. Boles, doing business as the Valley Falls Telephone Co., and authorizing that company to purchase.

May 1: Docket No. 801. Order permitting withdrawal without prejudice the application of the Assaria Mutual Telephone Co. to make certain changes for toll service.

NEBRASKA.

May: The Tuckerville Telephone Co., a new company in Custer County, has been granted permission to issue $800 of stock. The company has been organized to buy and improve 25 miles of farm lines with 16 instruments.

May: Valparaiso Telephone Co. authorized to issue new stock to the amount of $5,000 in addition to $25,000 already in existence. The proceeds of the new issue will be used in paying current indebtedness. In making the showing on the application, the company stated its property is worth $36,762 with $6,000 debts and $5,460 undivided profits.

OHIO.

May 6, 1914: Order authorizing the County Home Telephone Co. of Grover Hill, Ohio, to issue its capital stock of the par value of $2,500 and authorizing the sale of $450 thereof for extensions and improvements. The remainder of the stock is to be delivered to present stockholders in equal exchange for their present certificates illegally issued.

SOUTH DAKOTA.

Decision in the case of the Farmers Mutual Telephone Co. vs. the Nebraska Telephone Co. and order requiring the two companies to continue connection between their two exchanges at Fairfax by the use of the telephone line owned by complainant and that defendant afford the Farmers Mutual Telephone Co. with long distance toll connection for the transmission of toll messages over such connecting line between the two exchanges; but that the Farmers Mutual Telephone Co. shall become responsible to the Nebraska company for the toll charges as well as the terminal fee on incoming and outgoing toll messages between its subscribers and those of the Nebraska company.

May 21: Hearing to be held at Iroquois, Kingsbury County, in a case brought by the Farmers Telephone Exchange Co., against the Dakota Central Telephone Co. The complainant represents in its petition that it has seven rural telephone companies connected with it at Iroquois on a switching basis and request is made for physical connection with the Iroquois exchange of the Dakota Central Telephone Co. to provide long distance service over the latter company's toll lines. The Dakota Central has refused to make such connection.

May 21: Hearing to be held at Iroquois in the matter of the investigation into the rates, charges and practices of the Banner Telephone Co., the Esmond-Iroquois Telephone Co., the Farmers Exchange Telephone Co., the Farnsworth-Iroquois Telephone Co., the Logan-Banner Telephone Co., and the Osceola Telephone Co.

WISCONSIN.

May 4: Investigation and hearing held at Markesan on motion of the commission, of toll rate and division of tolls on the line connecting the H. A. Price Telephone Co. at Markesan with the Kingston Telephone Co. at Kingston.

May 7: Hearing held on application of the Prescott Telephone Exchange Co. for authority to increase rates.

May 8: Hearing held in the case of Frank Pospichal vs. Muscado Telephone Co.

May 15: Hearing in the case of the Palmer Boat Co., et al., vs. the Walworth Telephone Co.

May 15: Hearing in the case of the Interurban Telephone Co. vs. the T. M. E. R. & L. Co.

May 19: Investigation, on motion of the commission, of the rates, rules and regulations of the Eagle Telephone Co.

May 20: Hearing on application of the Cascade Telephone Co. for authority to increase rates.

May 20: Hearing on application of the Coloma Telephone Co. for authority to increase rates.

May 22: Hearing in the case of John Coady, et al., vs. the La Crosse Telephone Co.

May 26: Hearing on the application of the Redgranite Telephone Co. for authority to increase rates.

May 28: Hearing in the case of W. R. Howard & Son, et al., vs. the Greenwood Telephone Co., Inc.

Decision No. U.-276: Order holding that public convenience and necessity do not require the proposed extension of the lines of the Owen Telephone Co. in the town of Hoard, but permitting the company to proceed with an extension in Green Grove, both towns being in Clark County. The commission further holds that "the contention of the objecting companies that the territory which the applicant desires to serve in the town of Green Grove is naturally tributary to Colby, Abbotsford and Curtiss rather than to Owen is not sufficient to compel a finding that the service of the applicant is not required by public convenience and necessity, for the territory in question is now without telephone service and several residents have already signified their desire for the applicant's service."

Decision No. U.-280: Order holding that public convenience and necessity do not require the extension of the lines of the Fond du Lac Rural Telephone Co. to the town of Taycheedah, Fond du Lac County. The proposed extension was objected to by the Eastern Wisconsin Telephone Co. The commission further holds that "if the charges exacted for service rendered with existing connections are excessive or if the service is inadequate the proper remedy is to make complaint in the regular way rather than to invite a duplication of telephone systems."

Decision No. U-284: Order in the case in which the Oakfield Telephone Co. applied for authority to increase its message rates for toll messages from Oakfield to Fond du Lac over the lines of the Wisconsin Telephone Co. in Fond du Lac, holding that "a proper adjustment of the message rate from Oakfield to Fond du Lac cannot be secured except by an action to fix a joint rate for the Oakfield Telephone Co. and the Wisconsin Telephone Co. For this reason and for the further reason that the reports of the applicant do not indicate a need for increasing the revenue of the business as a whole the petition is dismissed without passing upon the reasonableness of the increased rate proposed by the applicant."

May: Permission granted the Ryan Farmers Telephone Co., Kewaunee, Wis., to issue $150 in stock for improvements.

May: Order authorizing the Ripon United Telephone Co., Ripon, Wis., to issue $10,000 capital stock.

May: Denial of the application of the Wisconsin Telephone Co. to enter the town of Rock, in Rock county, for the installation of telephones on the south side of the town.

GATHERING NEWS BY LONG DISTANCE.

(*Continued from page* 23.)

News Dissemination" by telephone was a new thing under the sun, but it was soon to become mighty popular.

At a certain hour every day trained men in the offices which took the service, put on their head sets, filled their pipes, and sat down at their typewriters ready for business.

New York Daily Receiving News Story from Washington.

Then the voice of the man in the news bureau's office began to tell of marriages and divorce, of love and death, and two headed hens, of train wrecks and floods, of tornadoes and twins; and, as he talked, the men at their typewriters set down the very latest word of the latest things that this most interesting world was doing.

At first, as the telephone men had suspected, the novelty of the service caused trouble. Many words are hard to get over a telephone wire. Edison, in a recent interview says that no one can understand "scissors" over the long distance wires. So the newspapers sent for the telephone people for help. The latter were ready. They had been training men for just this sort of advisory work. A "flying squadron" of experts went forth into the offices, teaching reporters the fundamentals of this new art.

They showed the "rewrite men," as the reporters at the other end of the telephone wires in most offices are still called, the necessity of getting proper names straight, and impressed upon the senders in the news bureau, the necessity of seeing that they were sent straight. The method of giving a word whose initial begins with the letter in question is one that is very popular:

"Taft—T for Thomas, A for Alfred, F for Frederick, T for Thomas," is a familiar enough way of transmission to any experienced reporter.

This method was taken up by correspondents all over the country and many business houses now employ it as an accurate method of transmission when a name is in doubt.

Another method of transmitting troublesome names was that in which each letter of the alphabet was numbered and the number repeated after the letter. This requires considerable practice, but those who use it have found it practical.

Then the "flying squadron" had to teach newspaper men to enunciate clearly. The reporter who howls his story into the telephone, the reporter who mumbles, the reporter who grabs up the instrument and talks across the top of it, one and all had to be shown that they were not getting the most out of the service. The good telephone reporter knows that there are certain rules which must be obeyed in telephoning and that the violation of these rules will result in disaster. To speak clearly in a carefully modulated voice with the mouth a certain distance from the transmitter so that every shading of tone goes across the wires to its mark, and to do this in a room full of uproar and confusion, is so small achievement and is something that requires constant practice. There were tricks, too, to be learned at the other end of the wires. The rewrite man found that it was better to keep a little behind the dictation than to attempt to keep up or even go ahead. Gradually the men with the head sets and typewriters, grew more and more proficient. An expert can now take as many as 70 words a minute, though he rarely attempts it. Fifty to 65 words is the rate at which the best of them get the news.

The telephone men gave more than advice to the rewrite men. They provided them with specially made instruments. The head set gave the reporter the free use of both hands. Then came the instruments with the little buttons on the side, called transmitter cutouts, which, when pressed, break the circuit so that the man on the other end cannot hear what is going on at the receiving station. But as a reporter would have to use one of his hands to operate a push button, a foot button was invented which is now in use in many offices. This cuts out from the transmitter and receiver all the noise in the receiving room and is a great aid to clear transmission.

In the large newspaper offices all the telephones are equipped with these buttons and they are mighty valuable at certain times. The reporter, who has called up some prominent citizen only to find that he won't talk, wishes to tell his city editor without being overheard by his victim. So with his finger on the button he reports without leaving the telephone, receives his instructions for further attack and the citizen is none the wiser.

The last minute news was getting into the offices of those papers that took the telephone service, just a few moments before it reached the others, and a "few moments" mean everything in the world to an evening newspaper man with editions to make.

The news associations that had hung back, looked about them, and discovered what the telephone was doing in other professions. They found that in spite of the initial skepticism of railroad men, trains were being dispatched a little better by telephone than they had been by telegraph. Surely, they bethought themselves, if so complicated an operation as train despatching can be efficiently handled by telephone, the same thing can be done in the newspaper business and one by one they came in.

The men of the commercial departments in the telephone companies set to work making contracts. Hours and length of service over the leased lines had to be carefully worked out. At first the rates were based on the number of words sent, but presently this was found to be unsatisfactory and rates were made on a time basis. From Indianapolis, for example, a press association was sending its news over the telephone to the Terre Haute Post, the Princeton News, the Vincennes Sun and the Evansville Press at periods between 10:30 and 10:45 a. m. at 12:30 to 12:45 and at 1:50 to 2:00 p. m. Into the offices from every large city, the tale of the world's doings was speeding across the fastest means of transmission known to man—the telephone wire..

Soon it was found that further development was possible. News by the P. N. D. process was simply being sent and the receiving end was doing nothing. But one day, just as the evening papers were going to press, a voice came from one of the receiving ends, caught by all the ears at the other receivers and it said:

"Hold your wires a minute, a murder has just broken out! I'll give you the story."

Every paper, which took that service, came out with a clean beat on its rival, and P. N. D. was changed to P. N. T. For the telephone service had become, more than mere disseminations and the expression, "Public News Telephone," covered the service that worked both ways.

Now the short period talking contract, that had been introduced in the business world, over the long distance wires became popular with newspaper proprietors, and they took advantage of the reduced rates it offered. A ten-minute service in specified hours was introduced and it soon came about that not only were newspapers printing more news and printing it more quickly after its happening, but they were also saving money by this new method. There was a greater liberty to pick and choose the news that they wanted than before. One of the greatest expenses in a newspaper office is caused by the correspondent who uses no judgment but dashes to his typewriter with fulsome accounts of events of no importance. There was now at hand an easy method of choking off this waste by simply hanging up the receiver.

The chances for a real beat are becoming less and less yearly, but the experienced newspaper man realizes that in nine cases out of ten, the beats come from the live correspondent who uses the telephone wisely. While his competitor is wasting valuable time in the agonies of composition, he is telling his story over the wire in his own way. He leaves the phrasing of the introduction to the trained writer in the office and has none of the horrors of a struggle with the past participle or the attempt to cram all the news into one sentence.

The handling of news over the telephone in a systematic way begins then with the news bureau disseminating service, branches into a service that works both ways, and takes in short period talking contracts. Alongside of this is the great business done in haphazard fashion in every newspaper office which the telephone companies propose to systematize as far as possible.

You saw how ably the telephone stood up under the acid test of the chronicling of the Titanic. This was because there was a definite scheme worked out in advance with an eye for all unexpected emergencies. Now the telephone people announce that they have a scheme for systematizing the whole field of newspaper correspondence and they believe that their new scheme will be as successful when it comes to the day by day transmission of news as it was on that eventful night a year ago.

The new departure is briefly this. Every paper of any importance has correspondents in all the large cities all over the country. A special press toll service has been worked out, after several years of strenuous activity on the part of the commercial offices of the telephone companies, by which the telephone people are able to offer a discount to the newspapers on the rates charged for long distance telephoning by correspondents. This service is offered only to the press.

The correspondent of the paper, that makes a contract for a long distance terminal, will call up his office when he has a story, reverse the charges and telephone his story direct to the telephone reporter in the office, who takes it on his typewriter or in long or short hand as the case may be. There is a reduction of the rates in such a case of from 10 to 20 per cent.

It is at once evident to what degree the whole business of news transmission will be speeded up. As the electric speed of the telephone outstrips the telegraph, or mail, or messenger service, so the newspaper that takes this new service will outstrip its competitors. The perplexities of transmission are simplified a hundred fold by this new service. There will no longer be the necessity for the correspondents awaiting the reply to the number of words desired. Immediate requests for later news can be made. When the newspaper proprietor realizes that tests show that approximately 20 words a minute can be taken down in long-hand over the telephone, 60 on the typewriter and 125 by short hand, it is plain what the new service offers as far as speed is concerned.

The Press Toll Service has the same advantages as the other telephone services, in that the telephone reports will give only the important facts. The telephone reporter, or rewrite man can instantly get from the correspondent any further details desired on any particular point.

But it is, after all, the broadening of the scope of service that will make particular appeal to the newspaper man. The whole great Bell system is thrown open to the use of the press. The telephones go to 70,000 places in this country. The telephone covers 5,000 more cities and towns than does the postoffice and 10,000 more than the railroads. Accessibility of facile means of communication is one of the first requisites of good news service. The correspondent need no longer hesitate to use the long distance telephone. He knows that behind that telephone is an army of 150,000 working day and night to keep the wires open for his story. He has heard, perhaps, of the standard of efficiency of telephone organization. When he has the further assurance that there is waiting at the other end of the wire, a man trained to the use of the telephone, ready to take down his story as fast as he sends it, he will quickly adapt himself to the new order of efficiency and his value to the paper he serves will be immeasurably enhanced.

The day will soon be here when an event of importance to any considerable number of persons, be it in a place ever so remote, can be reported almost instantaneously. Speed will not be sacrificed to accuracy, but rather there will come into the newspaper business, a wider range of vision, a more comprehensive survey of the world's happenings.

New Use for Telephone Receiver.

A telephone employe tells this story, says a Boston newpaper: "We had been constantly getting complaints," he said, "from subscribers on a line in Vermont and I was sent up to investigate. I managed to trace the trouble to a little house about a dozen miles from nowhere, and went in to examine the telephone box and batteries. The woman assured me there was nothing the matter with the telephone, that she always found it all right when she went to use it, and that it was a fine institution. She was so loud in its praise that she talked all the time I was looking over the apparatus, and finding everything all right.

Just as I was going away, convinced that the trouble was not there, she said "I don't know what I would do without the telephone. Whenever I want to darn stockings I take off the receiver and use it for a darning ball. It is the greatest thing in the world. I used it for a darning ball for over two hours yesterday.'"

Criticism of Small Type for Directories.

The Mountain States Telephone & Telegraph Co. officials may be pleasing the stockholders in saving a few thousand dollars in the expense of printing the directories, says a Colorado newspaper, but they are not pulling any extra money from the public in printing the directories in such small type that a person needs a magnifying glass to find a name and number.

Special Forms of Service as Telephone By-Products

Methods of Utilizing Idle Telephone Plant During Off-Peak Hours Pointed Out in Bulletin No. 11 Issued by the National Independent Telephone Association—Leasing Circuits—Time, Burglar, Fire Alarm, and "Wayside" Service—Distribution of News

The operation of a telephone system—the giving of service to subscribers—is alone so substantial and so profitable a business, when properly conducted, and is capable of absorbing so much attention, that many managers give scarcely a thought to the possibilities of creating or adopting plans for special forms of service as by-products, which will utilize idle plant and increase the revenue with little or no increase in operating expenses. This bulletin has been prepared in the hope that it may stimulate interest in the numerous ways in which a plant's productive power may be accelerated, to the manifest advantage of stockholders and subscribers alike; of the stockholders in larger returns; of the subscribers in the additional ways in which the telephone is made to serve them.

Experience has demonstrated that with every telephone plant efficiency falls far below 100 per cent. during certain periods of the 24 hours. It finds its lowest point in the outside wire plant—the wires leading from the exchange to the subscribers' stations. By reason of infrequent use, the efficiency of the wire plant is usually not greater than from 3 per cent. to 5 per cent.; that is, during from 95 per cent. to 97 per cent. of the time, this portion of the property is idle. The percentage of non-efficiency is not so low in the exchange equipment, ranging there around 50 per cent.

Experience has also shown that there are two or three periods in the 24 hours when the system is busier than at other times. What is known as the peak load may run in the forenoon from 8:30 to 10:30; in the afternoon from 2:30 to 4; and, in many instances, in the evening from 7 to 9. These periods are very clearly marked and many companies have figured traffic curves defining them with reasonable exactness. But, while approaching these peak loads and while receding from them, the greater portion of the plant, on the average, lies idle. During those times it fails to produce for either its stockholders or for the telephone-using public. And these are the periods in which it is possible to institute means for utilizing the idle plant.

Among the by-products which the manager of a telephone plant may develop, to sum them up briefly, are: Leasing of wires for telegraph service; the leasing of certain circuits at fixed hours of the day for exclusive telephone service; directory advertising; time service; burglar alarm service; fire alarm service; the so-called "wayside" telephones; and the use of the lines for the transmission to subscribers, from a central station, of news bulletins, baseball and other sporting scores, music—both vocal and instrumental—literary readings, etc. These special forms of service are here considered in the order named.

Leasing Toll Circuits.

A very considerable revenue is earned by many telephone companies through the leasing of their circuits between cities to brokers and others who employ the lines for telegraphic communication between their offices. As is commonly known, two circuits, when phantomed, may be used simultaneously for telephoning and telegraphing, without interfering with either. It is clear, therefore, that if there exists a demand for lines from point to point for telegraphic purposes, the revenue received will be gain, requiring little expenditure of money, enough to phantom the lines, and to purchase Morse instruments, and no more than the ordinary attention for maintenance. The usual charge for such service is $40 per line mile per annum.

Some companies, which have customers doing regularly a considerable amount of telephoning from one town to another, have found it to their advantage, and to that of their subscribers as well, to set aside certain hours, or shorter periods of time, when the circuit between those towns is in least demand. During this time the subscriber contracting for this service has the exclusive use of the circuit, being notified promptly at the expiration of the period.

In this case the rate fixed should at least equal the sum of the regular three-minute rate for the time set. For example, if the regular three-minute rate betwen two points is 30 cents, the rate for a half hour's uninterrupted use of the circuit should be not less than ten times 30 cents, or $3. This in order to avoid a possible charge of discrimination by state or interstate commerce commissions. The practice of thus renting circuits for telephone purposes has some adherents; others declare against it as bad policy and likely to be subversive of the best service.

Directory Advertising.

Too many companies overlook the actual producing value of advertising in their directories. Space in a telephone directory is not difficult to sell to local merchants because display advertising there brings eminently satisfactory results, a fact which may readily be demonstrated.

"Telephone directory advertising is effective," says an expert advertising man, "because it is continuous and persistent. It demands and receives attention, and the advertiser's story is told again and again to an audience that is constantly increasing. As an advertising medium the telephone directory occupies a unique field and, unlike any other medium, its circulation is continuous as well as large."

After pointing out the reasons for this, he concludes with the statement: "That a large proportion of the advertising in the telephone directory produces satisfactory results is evidenced by the fact that 90 per cent. of the advertisers renew or increase their contracts for space."

The cost of this business is relatively small for any company, comprising only the wages or commissions paid for procuring it and the charges for composition, printing and paper stock for the additional pages required. This is a very small percentage of the return which may be obtained. Many companies have developed this branch of the business to a point where it not only pays for their new directories, but even yields a profit above that cost. Rates must be fixed in accordance with local conditions. These, of course, vary widely.

Time Service.

There are a number of devices on the market looking to the utilization of idle telephone circuits on a profitable basis, such as clocks, synchronized from the central office, time stamps, etc. These are all exploited by their makers in the columns of the telephone press and their merits are readily learned, as well as their methods of appliance to individual systems.

Burglar and Fire Alarm Service.

It is a common thing for telephone companies to assign certain distinctive numbers which subscribers may call in case of either police or fire alarms. These numbers are closely watched at the central exchange and answered instantly. This, however, is done merely as an accommodation to the public and is in no case, nor could it be made to be, a direct revenue producer for the company. The burglar alarm here described,

however, may well become a substantial producer of revenue, as may also specially designed devices for fire protection, requiring equipment for that particular purpose, which are installed and maintained by the telephone company.

That every local telephone company can arrange to furnish burglar alarm service to its subscribers, by the installation of a very little additional equipment, has been demonstrated by M. L. Golladay, of Holden, Mo., who described his plan in TELEPHONY some time ago. This is only one method of accomplishing the result. Other companies have figured out other means of giving this protection, charging enough for it to leave them an appreciable margin on the cost. The simplicity and economy of Mr. Golladay's plan is one of its chief recommendations.

The only apparatus required at the exchange, he says, is one or more banks of magneto drops, a few one-point switches, some dry batteries and an ordinary annunciator bell. The equipment at the subscriber's station consists of ordinary burglar alarm door, transom and window springs, which may be bought at any electrical supply house for from fifteen to twenty cents each.

The circuit may be either common return or grounded, the former being preferable on account of requiring less current for operation.

Each subscriber who desires burglar protection, after having the necessary installation made, files with the telephone company a schedule of hours for his regular closing on week days, Saturday nights and Sunday nights. At those hours the operator calls on the telephone. If no response is obtained, she knows the place is closed and proceeds to throw the switch connecting his particular annunciator. If he answers, she inquires when his place will be closed, so that she may connect the alarm. Having the switch at the central office is preferable to having it at the subscriber's premises, as he may forget to close it, while the operator makes that a regular part of her routine work.

On the first and fifteenth of each month, the operator calls the subscriber and prepares for a test of the system. The circuit is closed and the operator tries each door and window to be certain all are in working order. If any are out of order, the telephone company's lineman repairs them at once.

In connection with this, the Holden company caused the city to install red electric light globes in the alleys and principal business streets on the beat of the night watchman, to admit of his being instantly summoned in case of need. These lights can be operated from the central office of the telephone company.

For the service as here outlined, the Holden company charges 50 cents per month for the first protector installed, 25 cents each for the next two, and 10 cents each for all subsequent protectors. The plan, Mr. Golladay says, has met with great favor among the merchants and business men generally.

Another plan, which is now in process of perfection, proposes the establishment of fire or burglar alarm boxes generally in the homes or places of business of telephone subscribers, each of which is equipped with a small phonograph disc, which need not be larger than a silver quarter. Upon pressing the button in this box, the phonograph device is set in motion, reciting to the central operator, or, in the case of an automatic system, to a special operator, the exact location of the alarm. This is repeated several times to insure against mistake. By the employment of this method, annunciators are rendered unnecessary in the central office as, regardless of the location of an alarm, the disc record places it correctly and instantly.

Special equipment for fire alarm purposes may be employed by either manual, automatic or automanual plants and with either common return or magneto systems. The telephone circuits alone are used. Fire alarm boxes are installed in the subscriber's premises, whether residence or business, connecting with the telephone wires.

As soon as the button in one of these boxes is pressed, the fire alarm is sent, taking precedence of any telephone connection then existing and preventing other connections being made until the alarm has been completely given. The alarm at headquarters is received in two ways. A bell is tapped, showing the number of the box from which the alarm was sent in, and the number of the box is also recorded on a paper tape. A working board shows at a glance the exact location of the box from which the alarm came. In a manual exchange, the apparatus is wired into one position of the switchboard. A large red light gives the operator notice of a fire alarm. She simply inserts a plug into the fire headquarters' jack and the alarm is instantly and correctly conveyed. In an automatic exchange when the button is pushed, the apparatus selects the fire headquarters' switches, cutting out telephone users, and automatically transmits the alarm.

According to authorities on the subject, an electric circuit which is used for fire alarm purposes must satisfy three conditions. First, it must be maintained in perfect condition; second, it must not get out of order easily; third, it must give instant notice of any unusual conditions which would interfere with its workings. Obviously telephone circuits satisfy these conditions as well as it is possible to satisfy them. They are in constant use and defects are quickly ascertained and quickly remedied in order to give good telephone service.

It is perfectly clear, therefore, that, under these circumstances, the telephone company is the logical corporation to handle fire alarms and that its complete system of wire distribution, high maintenance and frequent tests permits it to do so to far better advantage than could any other corporation which must employ special circuits for the purpose.

Another feature is the fact that a telephone user naturally turns to his instrument, in case of fire, to telephone the alarm, in preference to hunting a corner box, with the location of which he is usually totally unfamiliar. The report of the Commissioner of Commerce and Labor of the United States shows that, during the past five years, more fire alarms were transmitted by telephone than in any other way. If, therefore, an arrangement can be installed which will permit practically instantaneous means of transmitting an alarm, it is inevitable that an overwhelming majority of telephone users will install it without argument. The more so as the cost of the service may be very low. The fire alarm service as a by-product of the telephone business, therefore, merits close attention.

WAYSIDE TELEPHONE SERVICE.

The rapidly increasing spread of the use of automobiles, with its attendant spur to the making and maintaining of good roads throughout the country, was undoubtedly directly responsible for the evolution of the so-called "wayside" telephone service. The exigencies of automobile travel made it imperative that, although miles from the city or a garage, the driver of a car be able to communicate with the heart of things. And this the wayside telephone accomplishes.

The equipment is simple; an iron box fastened to the telephone pole, containing a specially constructed jack, connecting with the circuits above, and a small hand microphone fitted with a plug to fit the jack. The motorist carries the microphone with him constantly. In case of emergency he has merely to reach the nearest equipped pole, plug in and call his number, as he would do if he were seated at his desk. The company makes a regular monthly charge for the rental of the instrument.

This service is now by no means confined to highways outside the city. It was found that many mercantile houses would adopt the plan of outfitting their delivery wagon drivers with the little instruments, permitting them to call the house frequently from points about the city, thus economizing on time and saving many long return trips back to the house, only to be sent out again in perhaps the same neighborhood.

Taxicab garages were quick to perceive the manifold advantages of the wayside service in the city, and to equip each of their drivers with a microphone. To make this service of wider value, therefore, several companies have installed the special jack boxes at frequent intervals on poles all through the city, business and residence districts alike, so that one need never be over a block or two from a box. One taxicab company informed the company furnishing the service that it estimated a saving from the plan of at least 40 per cent., of its dead mileage. Baggage transfer concerns, physicians, newspaper reporters, detective agencies, even hospitals and the city fire and police departments have become eager patrons of this wayside service.

One company, which went rather extensively into the wayside branch of the business, charged a flat rate of $6 per annum for the microphones and showed a gratifying profit over all costs of installation and maintenance.

In this instance the fad for microphones spread until there were many patrons who desired what the company called "bedside" service—an extension terminating in a microphone by the bedside—and many instruments were placed where probably no extensions would have been ordered had it not been for the convenience of their form.

In another large city an automobile emergency service company was organized, which paid the telephone company for the right to install and maintain pole boxes on the automobile roads in the territory, equipping with microphones those who paid for the "emergency service." The boxes in this case were placed so high on the poles as to be out of the reach of pedestrians, but conveniently tapped from an automobile. There appears no substantial reason, however, why a company should not obtain all the revenue from this by-product, instead of only a part of it.

Distribution of News and Entertainment.

Since the days of Edward Bellamy's prophetic book, "Looking Backward," there have been many theories advanced and many devices tried out, having for their aim the transmission over wires of bulletins, news, the scores of athletic games, racing information, weather reports, stock market reports, etc., as well as musical and other entertainment features. Some of these have been practical to a greater or less extent; some have been dropped as impossible of accomplishment.

As is well known, there is, in Budapest, Hungary, a long-established telephone "newspaper," so-called, the Telefon Hirmonda, which does precisely this thing and has done it for years. This concern does not use the regular telephone wires, however, but installs its own circuits. Some attempts have been made to establish similar institutions on this side of the Atlantic, thus far without conspicuous success.

But there has been perfected in this country apparatus for this purpose which, it is stated, has been proven thoroughly successful, and which is operated in connection with the established circuits of the telephone company in any locality. Here, seemingly, is opened a wide and profitable field for exploitation. It is stated that the investment required is negligible, while the returns are regular and most satisfactory.

In its simplest form no attempt is made to handle any news or original matter. A connection is made with a phonograph and its records constitute the only features given to subscribers. The instrument is installed at the main exchange and it may be operated continuously through the day and evening, the subscribers cutting it on or off at their respective stations as they may elect. The subscriber's equipment consists simply of a specially designed horn, connected with the wires at the telephone. The entertainment feature does not interfere with the regular use of the latter, which cuts in automatically when a call is put through, or which may be used by the subscriber to send a call, either action cutting off the amusement circuit.

In its more elaborate form, a company may provide special readers at the central station to give news at certain specified times of the day, baseball scores, with running accounts of the game then being played, special advertising offers of local merchants, etc. It may also employ musicians and singers to render their selections expressly for this purpose, all being picked up at the central station and transmitted direct to the subscribers to the special service. Lectures and addresses on topics of current interest may be interspersed with the lighter varieties of entertainment. The phonograph may be liberally used to fill the gaps, giving a continuous performance from early morning till late at night.

Programs may be specially selected for each day and announced through the papers, or otherwise, thus informing a subscriber as to what to expect at certain times of the day. Many other things will readily suggest themselves to one who studies the matter, with the effect of rousing public interest in the enterprise to a point where most of the subscribers will take and pay a reasonable extra fee for the service.

Special installations may be made in ball parks and athletic fields, or any place where the public congregates in numbers, with a special central distributing station on the grounds. There music may fill the gaps in the proceedings, results may be announced and men paged for special causes. The advertising value of such a demonstration as this is readily apparent.

Effective Telephone Advertising at Athens, Ohio.

An extremely interesting and effective form of advertising publicity has been hit upon by the Athens County Home Telephone Co. of Athens, Ohio. On May 1, the fifteenth anniversary of the origin of the company's plant and business in Athens County, a full page advertisement was carried in the local newspaper calling attention to this anniversary date, and publishing, between views showing the first exchange and the present exchange of the company, the names of the original 100 subscribers of the company.

These individuals and companies are referred to as "a list of one hundred enterprising business people of the county seat who, on May 1, 1899, put their shoulders to the wheel, as it were, by subscribing for the service, and through their encouragement, we have today one of the best county telephone systems in the state, with its copper long distance lines extending in all directions that our commercial needs require. To these gentlemen is due more credit, doubtless, than we have ever realized up to this time."

Attention is then called to the fact that while other lines of business may perhap be said to be lagging, The Home Telephone Co. is experiencing a marvelous growth. In evidence of this statement the company then publishes at the bottom of the page advertisement the names, addresses and telephone numbers of 160 new subscribers which have been secured since the publication of its January directory.

The appeal ends as follows: "The above new subscribers' list is a result purely of satisfactory service conditions. Try our automatic calling toll service to Columbus. Eventually! why not now?"

Sale of Redondo Beach Home Telephone Co.

A majority of the stock of the Redondo Beach Home Telephone Co., of Redmonds Beach, Cal., has been acquired by T. A. Gould, of Los Angeles, who has assumed the management of the company. Mr. Gould has had many years of experience in the telephone business—all of it in the Independent field. For six years he managed the Ellis County (Texas) Independent Telephone Co. with notable success. He expects to make important additions to the Redondo Beach exchange in future, but has nothing definite to announce until he becomes better acquainted with local conditions and needs. C. E. Nicholas, for a long time manager of the Redondo Beach Home Telephone Co. exchange will remain for some time, while Mr. Gould gets hold of the business.

Queries on Theory and Practice

Induction and Miscellaneous Questions.

The diagram (Fig. 1-*A*) shows the location of our lines as regards the trolley wires. At two places our lines are on the opposite side of the highway from distances of ¼ and ½ miles. For two miles the lines are on 20-ft. poles about three feet from the tracks and the telephone wires on the arms about ten feet from the trolley. For about a mile 30-ft. poles are used and they are also close to the tracks.

This trolley line consists of overhead trolley wires and tracks bonded for return. The feeder wires are said to carry 600 volts. I conclude the overhead wires also do. "The Inspector and Troubleman" gives transpositions as a remedy for induction on simple metallic lines, but in this case the one line grounded in office, makes an unbalanced circuit when used locally.

In the diagram showing transpositions (Fig. 1-*B*), 1 and 2 designate a party line, substations using a grounding key to call central. This line is nearest to the trolley. Wires 3 and 4 designate a trunk line. The party line runs on east six miles, with transpositions a mile or more apart.

Lines 1 and 2, and 5 and 6 are noisy until the central operator inserts a plug, removing the ground in the office, when they become quiet.

(1). Is this not magnetic induction from trolley, or is it electrostatic induction?

(2). Is there any way to overcome this noise? This noise does not interfere with the use of the line, but is disagreeable.

(3). How is a resonant circuit made?

(4). I have "Modern American Telephony," by A. B. Smith, "The A. B. C. of the Telephone," and "The Inspector and the

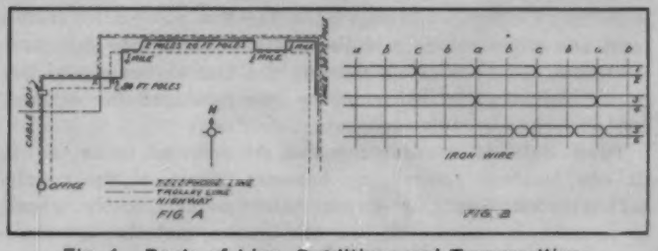


Fig. 1. Route of Line, Conditions and Transpositions.

Troubleman." What other books would be instructive in telephone work.

(5). Is an aerial cable messenger ever grounded as protection from lightning?

(1). You are doubtless getting both electro-magnetic and electro-static induction.

(2). This can be overcome by proper balancing of the circuit at the switchboard. Wind the switchboard drop coil with two windings (Fig. 2-*A*), connected in series and ground the center point. Be careful to have equal turns in both parts and no short circuited turns. Another method would be to employ an impedance coil (Fig. 2-*B*) whose center is grounded through the drop. A repeating coil (Fig. 2-*C*) is an excellent way of getting what you want, for you can buy one which is perfectly balanced and your drop will be on a local circuit so that you do not ring through any impedance as is the case with (Fig. 2-*B*).

(3). A resonant circuit contains inductance and capacity (Fig. 2-*D*). The inductance is a coil of insulated wire with or without an iron core. The capacity is a condenser. The reactance of the inductive coil just neutralizes the reactance of the condenser; that is $2\pi fL = \frac{1}{2\pi fC}$ in which $\pi = 3.1416$; f = frequency in cycles per second; L = inductance in henrys; and C = capacity in farads (one million microfarads = one farad). In such a circuit the current will oscillate at the critical or natural frequency with but little voltage to excite it.

Natural frequency is equal to $f = \frac{1}{2\pi\sqrt{LC}}$.

If you connect a condenser (Fig. 2-*E*), a 110-volt 16 c. p. carbon lamp and a suitable impedance coil of low resistance in series across the 110-volt, 60 cycle, alternating current mains, you may get an illustration of resonance. If the condenser is 3 mf., and the coil has 2.33 henrys inductance, the lamp will light. You can dim it or weaken it greatly by short circuiting

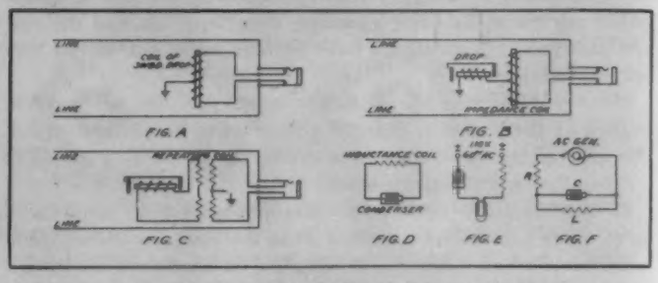


Fig. 2. Suggestions for Experimenting.

either the condenser or the coil. Each has about 880 ohms reactance, which alone can reduce the current very much. But if both condenser and coil are in circuit together, their reactances neutralize each other, leaving only the resistance of the lamp and coil.

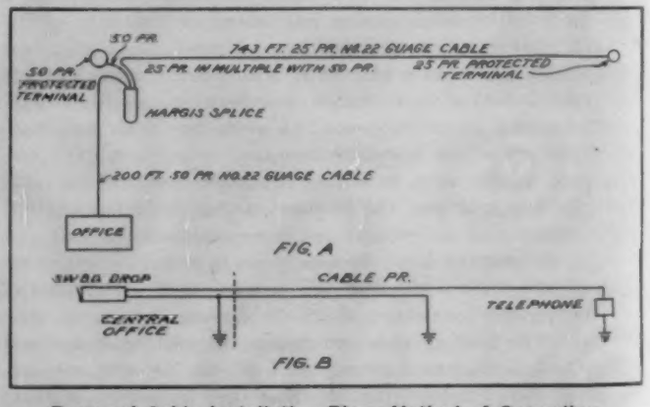
If we connect a coil, L, and condenser, C, (Fig. 2-*F*) in parallel, and run the generator at the natural frequency of the coil and condenser, we shall have a much stronger current in the local circuit than in the line, R, and generator. This is also resonance.

(4). You might study with profit McMeen & Miller's book "Telephony," Thiess & Joy's "Toll Telephone Practice" and Van Deventer's "Telephonology." We can supply any of these.

(5). Yes. It is general practice to bond the cable to the messenger wire at intervals of 1,000 feet and to ground the messenger at every fifth bond, beginning at the office pole.

Miscellaneous Cable Installation Questions.

Please give us your opinion on the proposed cable installation as shown by the accompanying sketch (Fig. *A*): (1). Has a 3 per cent. tin cable sheath advantage over the pure lead sheath to the extent of 10 per cent. advance in price? Will it be safe to pull this cable through aerial rings instead of cable rollers? (2). Would it be advisable to ground the messenger, considering the fact that we are going to split the cable pairs to work grounded? (3). What method of con-



Proposed Cable Installation Plan—Method of Grounding.

struction will reduce the cross talk to a minimum in a grounded system? (4). Is a 7-ampere fuse sure protection to a cable, having No. 22 gage conductors, when installed under conditions as set forth in Fig. *A*? If not, what amperage is safe?

(5). We have two toll lines, six miles long, using No. 12 B. B. iron wire. We have transposed one of these lines every

half mile, and the other is not finished. Will it be good practice to transpose the other circuit at the same distance, staggering the transpositions like this $\frac{x \quad x}{x \quad x}$? We have no light plant in our town, although there is a possibility of one being installed in the near future. The town to which we connect our toll lines with has a high tension transmission system carrying 66,000 volts.

(1). We do not think that the tin is necessary. It is good only as a stiffener and will not help you after the cable is erected. It is better to pull it into place with rollers, but you should experience no trouble with the rings if they are carefully put on so as not to cause undue friction to the cable.

(2). Yes, ground the cable sheath, and the messenger also.

(3). You will get less cross talk by grounding the mate of each cable pair at both ends, as in Fig. *B*. If you "split" the pairs, using each wire of a pair for different lines, you will have annoying cross talk. Some of your pairs will be 943 feet in cable, and the capacity from wire will be relatively great.

(4). A 7-ampere fuse is rather large. Five amperes should be large enough. You should have a block arrester between the fuse and the cable, so that strong current will jump to earth, blow the fuse, and thus cut off the cable.

(5). It will be entirely practical to stagger the transpositions as you suggest, and it will give you quiet conditions between the lines.

Avoiding Disturbances from Single Phase Lines.

G. Girousse, engineer of state telegraphs, France, discusses in an issue of La Lumière Electrique, several methods which are available for reducing or preventing single phase distribution systems from disturbing telephone and ground return telegraph circuits. Four remedies are mentioned, namely: Using compensating devices, shifting the circuits to pole lines at least one mile distant from the high-tension route, placing them underground, and doubling them by adding return wires. All remedies but the first are rejected by M. Girousse as too costly. He states that telephone circuits require two important precautions, good insulation and minimum inductance. The insulators should be of the industrial type with large petticoats instead of the present French type with two bells. The petticoat insulators are much easier to maintain, particularly in cleaning, and they cost little more. The insulating points on telephone circuits which leave most to be desired, are the underground sections, which until lately have been freely installed at crossings with heavy current transmission lines. These underground sections, especially at the junctions with aerial lines, constitute the weakest points of a telephone circuit and should be avoided wherever possible. To minimize induction, the number of transpositions must be increased. It would probably suffice to make such transpositions every 125 meters (410 ft.).

M. Girousse states that it is also necessary to take certain precautions at the offices, for it is useless to insulate the line carefully if the office equipment suffers ground losses. To remove the circuits from the bad influences due to losses, either on the lines or the inside equipments, it is best to isolate them by means of transformers. Excellent transformers which insulate against high tension current are now available.

On some of the existing installations, the derangement of lines within the influence of induction from single phase track circuits has been caused frequently by carbon lightning arresters. The extreme sensitiveness of this arrester is usually a valuable quality, but when its nearness to single phase circuits causes excessive operation, the particles of carbon become detached.

This disintegration causes leakage to ground which cannot be neglected. Therefore it is desirable to replace such apparatus either by horn or vacuum-type lightning arresters. This change will eliminate the destruction of the arresters, but it is still necessary to have a device to avoid shocks. If transformers were used, they would protect the office force, but they would not protect the workmen on the line. In order to eliminate all dangerous high tensions, grounding discharge coils should be installed. These coils should be of the Cailho type which are used for telegraphing on telephonic circuits. This coil, however, as ordinarily made, is not intended to take care of the high-voltage currents induced by single phase circuits. A modification for the later purpose known as the Perego coil is the one which has given good results on the telephone circuits of the Oriental Pyrénés' lines.

Great Salt Lake Preserves Timbers.

In replacing a railroad trestle recently burned along the north shore of Great Salt Lake, engineers have just found that the piles are still perfectly sound after 43 years of service. Looking for the cause, since these were only of local pine and fir, they found the timbers were impregnated throughout with salt from the lake. At another point on the lake, 18-inch piles, set 29 years, are similarly preserved with salt which has penetrated to their very center. Timbers in the Southern Pacific trestles across Salt Lake, placed in 1902, appear to be as good as on the day when the piles were driven. They have been preserved well above water line by the salt dashed on to them by the waves, a fact apparently anticipated by the engineers who built the trestles.

The first transcontinental telegraph line, built before the railroad, extended west from Salt Lake City through the prosperous mining camps of Eureka, Austin and Virginia City. When the railroad was built, the telegraph line was transferred to follow its right of way and the old poles sawed off at the ground. An engineer who recently examined the butts left in the rgound in the salt desert near Fish Springs, found that, although 50 years had passed since the poles were cut off, the old butts were perfectly sound.

Telephone and electric companies in the Salt Lake valley have used the local salt for preserving poles. When set up, about 75 pounds of salt is placed around the pole on the ground. This method cannot be used, however, when the pole is on or near a lawn, or in any place where vegetation is desired.

It is pointed out that the reason why the waters of Salt Lake act as a strong preservative, as distinguished from ocean waters, is because the lake water is so much saltier, being practically a saturate solution. Preservation with salt is of no use in ocean piling against the attack of teredos and other marine borers.

Experts in the forest service who have been investigating the preservative treatment of timber offer the suggestion that ties and poles which have been immersed for some time in the waters of the lake ought to be impervious to decay if the salt is not leached out by the action of the elements. It has been suggested that this can be guarded against, for example, by painting the butt of the pole with a coat of creosote which will keep out the moisture and keep in the salt.

The Telephone Service in London, England.

The postmaster general of England states that space exists for additional subscribers' lines, aggregating 38,783, at 14 of the principal exchanges in London. Spare capacity is also available at practically all the suburban exchanges. A new exchange has been opened in Bloomsbury, called "Museum," with an ultimate capacity of 10,000 lines. This district has heretofore been served by the Central exchange in the city, which will now be much relieved.

The Telegraph and the Telephone in Railroad Service

Comparisons of Telegraph and Telephone in Train Dispatching Including Data on First Cost, Operation and Maintenance—Abstract of Paper Presented Before American Institute of Electrical Engineers—Concluding Installment

By M. H. Clapp

Two very useful and time-saving auxiliaries, which are available with a telephone system are installations of telephones in booths or boxes along the railroad right-of-way at so-called "blind sidings" (where no regular operators are employed, and where there may be not even a station building) and portable telephones for the use of the train crews. Telephones of these types can be used to great advantage by the trainmen in handling the many emergencies that arise, and are also of material assistance to the dispatcher, in reducing train delays.

The portable telephone has obvious advantages in the respect that it can be used at any point along the road, by making temporary attachment to the telephone line wires. Some of the railroads, however, have installed telephones in boxes or booths along the right-of-way every half mile; in such cases portable telephones could hardly be used to advantage. The telephones along the right-of-way are usually connected to the dispatching circuit so that the trainmen can talk directly to the dispatcher. Where telephones are provided every half mile, they are usually connected to a separate line-circuit, and provisions are made at way stations for switching it to the dispatching circuit.

The cost of a booth installed along the right-of-way, with the necessary telephone apparatus, depends upon how elaborate an installation is desired; a very substantial and satisfactory installation can be provided for $90, but this can be reduced to possibly $30. A good portable telephone can be purchased for $12.

In addition to the uses already described, there are various miscellaneous ways in which the telephone can be used on a modern railroad. Telephone sets are placed in the observation cars of limited trains and connected to the railroad company's branch exchange, so that passengers can talk to parties in the city from which the train is leaving, up to the time of departure. The telephone is often installed in freight sheds and in freight yards so as to provide a means of ready communication from one point to another. Special types of telephone sets are installed on the desks of officials and so wired that conversations can be carried on with other officials in the same building by ringing a bell as a signal and then simply talking in an ordinary tone of voice into the telephone set, without the use of the ordinary receiver or transmitter. Local telephones are installed in the homes of trainmen for use in calling them for duty, thus saving time and avoiding the expense of employing messengers.

Cost of Maintenance.

The cost of maintenance of the telephone is always more than the telegraph, for the reasons that the telephone is more complicated and has more equipment. In the author's opinion, specially trained men should always be employed to maintain the telephone station equipment, although on some railroads the section linemen are required to maintain the telephone equipment; the last plan, however, produces in most cases indifferent results, in the author's opinion. In order to maintain properly four selective telephone circuits, having an average length of 100 miles each, at least one telephone inspector should be provided at a monthly rate of $85 with expenses, and there should be additional force if there are many telephones maintained at different "blind sidings" along the line, or special apparatus installed at various terminals, private-branch exchanges, etc. All of this expense is practically in excess of what is necessary to maintain the telegraph to handle the same work, although, as already indicated, the telephone handles a great many transactions that were never attempted by telegraph.

Comparative Advantages of the Telephone.

The advantages of the telephone are many; some direct, some indirect and some psychological. The first and most important in the author's opinion, is that it permits direct dealing between the parties desiring to transact business. The superintendent can talk directly with his subordinate; the chief dispatcher can talk directly with the trainmen out on the line, and any two employes can deal directly with one another, if the proper telephone facilities have been provided. This is what might be termed the universality of the telephone as compared with the telegraph; every one from the president to the section foreman can use the telephone directly.

The telephone, compared with the telegraph, is a great time saver on account of its speed of transmission. Train orders can be handled more rapidly by telephone than by telegraph. This is due to the fact that the orders can actually be transmitted faster over the telephone; also, to the fact that the operators along the line can be made to answer the calls on telephone bells quicker than their calls on the telegraph. The primary reason for this last condition is the use of four-inch vibrating bells for way station calling signals, which can be heard from some distance. Again, an operator does not know what is taking place on a telephone line until he comes in on the circuit, while, with the telegraph, the operator by listening can read all that is being sent and, in some cases, can judge as to the relative importance of the calls for his office.

A call on the telephone always involves an uncertainty as to what is wanted or who is calling; therefore, in order to be on the safe side, the operator will unconsciously drop any work in which he is engaged and answer the telephone bell when it rings. This peculiarity of the telephone constitutes one of its psychological advantages referred to above. Furthermore, the calling bell is wired so in the circuit that the dispatcher hears it ring, thus removing any doubt as to whether the bell actually rang or not. This is a very important point in favor of the telephone, as it removes any chance for an argument between the dispatcher and the operator as to whether the latter was called.

Since the dispatcher remains on the circuit continuously, the operators along the line can communicate with him without calling, by simply coming in on the circuit and stating whatever information they may have to communicate. On this account it naturally follows that more detailed information is obtained as to train movement, and that the dispatchers can keep in closer touch with their work. In using the telegraph a train dispatcher is not able to transmit his thoughts by one-tenth the speed he could express himself by word of mouth. While a dispatcher cannot send a train order ten times as fast by telephone as by telegraph, he can carry on conversations with operators and trainmen along the line at this rate, which is a great advantage to all concerned. Also with the telephone, the necessity is removed of operating trains through the medium of a large number of men of varying ability.

Then there is the human side of the telephone system; the men along the line get very much better acquainted over the telephone than over the telegraph, and co-operate to greater advantage. This condition was largely unknown when using the telegraph, and is not the least of the advantages in the use of the telephone.

By the use of the telephone, the field from which dispatchers and operators can be recruited is naturally broadened. It is no longer necessary on a railroad where the telephone has been installed with a sufficient number of circuits to keep the service intact, to depend on telegraph operators, in other words, specialists. There is, for example, one division on the Pennsylvania Railroad where, out of about 400 operators' positions along the line, it is necessary to fill only eight of them with telegraph operators. This is a very important point for consideration in these days when, as already stated, the supply of telegraph operators is not equal to the demand. Also, it is possible to use as a dispatcher an employe other than one who has obtained his experience in the telegraph or telephone service, as, for example, a freight or passenger conductor.

While a telephone circuit is, in most cases, more susceptible to outside influences than the telegraph, experience shows that in heavy weather, heavy fog, mist, rain or snow, less trouble is experienced with the telephone than with the telegraph; and the telephone is affected only to a small degree by earth currents or by the aurora borealis.

Finally, we have for consideration the saving in the operation of the railroad by the use of the telephone. Unfortunately, it is hard to show in all cases a saving, because many of the best known economies are more or less intangible. One is generally sure that he is saving time by using the telephone, and it seems at least a fair assumption that there is a corresponding money saving. The psychological effects can be capitalized to some extent, but it is generally difficult to do it. In the way of direct saving, the ability of the dispatcher to get his trains over the division quickly, thereby economizing in operating expenses, is the most evident, and easiest to understand. This is especially noticeable in the amount of overtime than can be saved in the pay rolls of the trainmen and the enginemen.

As it is conservatively estimated that the trains can be handled over a division from 10 to 20 per cent. more rapidly by telephone than by telegraph, an approximate estimate of the overtime saved can be prepared by considering a certain operating division before and after the telegraph is replaced by the telephone. For example, on a certain division where the Northern Pacific is now installing the telephone, both for handling trains and for handling the messages along the line, it has been estimated that a saving of about $200 per month will be made in overtime paid to trainmen and enginemen, to say nothing of the other indirect savings of which mention has already been made.

In some cases, a direct saving can be made by using a smaller number of dispatchers when handling a given section of railroad by telephone, as compared with the telegraph. For example, there is a division on the Northern Pacific which is made up of four consecutive districts, having an average length of a little over 100 miles each. Part of the year, the four districts can be handled by using two telephone dispatching circuits; but when there is considerable business on the railroad, four dispatching circuits are used. It would be necessary with the telegraph, to handle the four districts by using four circuits at all seasons of the year. As it requires three dispatchers to handle one dispatcher's circuit during the entire 24 hours, and as the salary of a trick dispatcher is $155 per month, the abandonment of any of these positions, even for a part of the year, is a very desirable thing from the standpoint of saving in expenses.

Savings are also made possible by the installation of telephones in booths or boxes at or near small and unimportant stations along the line where operators have been employed, thus resulting in the closing of these stations for a portion of the day, at least, and reducing the number of operators. In some cases, less expensive operators are employed when the telephone is installed. This practice is quite common on some of the railroads, and is done both at the stations along the line and in the offices at terminals and headquarters. In the latter case female employes are often used to advantage, as all that is necessary is a reasonable familiarity with the business to be handled and the ability to operate a typewriter.

Disadvantages of the Telephone.

The principal disadvantage of the telephone as compared with the telegraph is its cost of installation and maintenance. However, these increased costs are overcome by the savings that are made possible. Another disadvantage is that the telephone, in the present state of the art, is not adapted, on account of excessive cost, for use on the railroad for any considerable distance. While there is a circuit about 1,000 miles in length in operation on one railroad in this country, at least, this circuit is used entirely as a talking circuit and is not used for message work. It requires a good margin of transmission to handle messages over a telephone circuit and, according to the author's experience, a circuit, equating to more than 26 miles of standard cable, should not be used in railroad service; at least, not in connection with handling trains or messages.

While it is possible to construct a telephone circuit 2,000 miles (3,218 km.) long, or even longer, that would have the proper transmission efficiency, it will apparently be some time before a railroad can justify such a circuit, from the standpoint of first cost and maintenance expense, and benefits derived. The telegraph will probably continue to handle the messages for the long distances, such as 500, 1,000, or 1,500 miles (804, 1,609, or 2,414 km.) for a considerable time to come.

The telephone is not as flexible as the telegraph when making patches in cases of trouble on the regular wires. Suppose that the entire pole line is down at some point between two terminals, it is very easy to re-establish a telegraph circuit over some second route, even though it be very circuitous. If the circuit is too long for direct working, repeaters can be cut into the circuit at intermediate points. For example, it is entirely possible for the Northern Pacific to obtain a circuit from the Western Union Telegraph Co. via Omaha, Denver, Cheyenne, Ogden and Portland, and work directly between its St. Paul and Tacoma offices. But it is impossible to establish an emergency telephone circuit for the distance involved in this example, or for considerably shorter distances.

The telephone requires a much higher efficiency of maintenance than the telegraph. That is not, strictly speaking, a disadvantage. In fact, the telegraph wires and apparatus should be maintained as well as the telephone system, but in practice this is not done except in very few cases. Also, there are more delicate parts in the telephone apparatus, to get out of order, than in the telegraph. The required efficiency of maintenance is not as easy to establish, on a railroad, as might be thought. The telegraph and telephone plant is necessarily spread out over the entire system, without very much of it in any one place; this makes it difficult to secure adequate supervision, and it is not easy to impress upon the different employes who have to do with the maintenance of the plant, the importance of keeping the lines and apparatus in proper condition.

Relative Advantages of Telegraph and Telephone.

The following summary presents the respective advantages and disadvantages of the telegraph and the telephone.

The advantages of the telegraph are: (1) Flexibility in handling circuits; (2) simplicity of installation, operation and

maintenance; (3) best adapted for long distance service; (4) least affected by distance, in respect to transmission efficiency; (5) low cost of installation and maintenance; and (6) the necessary standard of maintenance is not difficult to secure.

The advantages of the telephone are: (1) Universality; (2) saving of time; (3) rapidity of transmission or dispatch of business; (4) psychological effects; (5) minimum delay in getting offices to answer calls; (6) lack of necessity of trained specialists to operate the service; (7) saving in total expenses of railroad operation; and (8) minimum impairment of transmission efficiency in heavy weather.

Applications of the Telephones.

As yet very few railroads are using the telephones as much as they could or should. Because many of the economies with the telephone are more or less intangible, railroad managers are rather cautious in authorizing its wholesale installation. They are usually ready to authorize telephone dispatching circuits, as the savings from them are more easily understood than in other applications. In the author's opinion, the up-to-date railroad of the future will handle its operating divisions entirely by telephone, the telegraph being used only for message work for long distances between the terminals and the general headquarters. On the divisions, the typical way office will have no telegraph instruments, and will depend entirely upon the telephone for handling all messages. At all terminal points and important offices along the line, private-branch exchanges will be installed, which will be connected with each other by means of talking circuits, so that any two employes on the same division or adjacent divisions can communicate with each other easily and quickly.

Telephones will be installed in booths or boxes along the right-of-way at frequent intervals, such as every half-mile, and the necessary lines and apparatus provided so that trainmen, sectionmen or any one out on the line can obtain ready communication with persons with whom they may have business to transact. Where portable sets can be used to advantage, they will be furnished to such employes as trainmen, sectionmen, linemen, signal maintainers, etc., so that connections can be made directly to the telephone line wires at any point along the line. Ample telephone service will be provided at all points, especially where private branch exchanges are installed, so that all employes having any legitimate need to talk to one another can do so without delay whether in the same city or town, or at points on the same division, or other divisions, within a possible limit of 1,000 miles. Also, the railroads will not forget to provide ample service so that the public can reach certain authorized employes by telephone, promptly, when necessary.

The above outline of the applications of the telephone to the needs of a railroad is not entirely prophecy, since there are railroads in this country already using the telephone, on portions of their systems at least, almost as extensively as contemplated in the foregoing description.

There are four general methods of communication, namely: by personal interview, by letter, by telegraph or telephone message, and by telephone conversation. There are certain business transactions that can best be handled by only one of the above methods; there are others that can be handled by two or more of these methods; and in some cases, by any one of the four. Without doubt there is always one of these methods, as a rule, that is best adapted to any particular transaction. While a great deal of traveling is done by railroad men, there is still, in the author's judgment, a lack of personal contact in a great many of the departments between the man in charge and the men in the field; in other words, there is a lack of supervision. There is probably no lack in the number of letters written; and there is no doubt at all that too many telegraph messages are sent.

The telephone as a means of communication is not, however, used as it should be on the railroads in this country. As already pointed out, the local use of the telephone has been well developed in a great many places, and the same is true of its use in dispatching trains; but its universal application as a means of communication, and its substitution for and its use as an auxiliary to the telegraph, have only in a very few instances been carried to a logical conclusion.

Remarkable Use for the Telephone.

The telephone is 38 years old and has been the servant of mankind for nearly as many years. One would imagine that by this time mankind would have ceased to find new duties for it to perform. On the contrary, everyday we hear of a new task.

For many years it has played a part on the stage, but always a silent part,—the actor always monopolizing the conversation. Miss Annie Russell, the well-known actress, with Mr. Oswold Yorke, recently conceived a new role for the heretofore silent little member of their cast, says The Telephone News. In "The Lady in the Case" the telephone "spoke right out in meeting," sustaining its part of the dialogue, thereby avoiding the heretofore one-sided conversation which has always left the audience to supply the other side, as it saw fit.

The effect was artistically carried out, the telephone repeating its part as any well-trained telephone should, without the slightest suggestion of stage fright at hearing its own voice for the first time before the footlights, and oblivious of the prompter behind the scenes.

The audience was convinced that there really was some one at the other end of the line. The effect was produced by special loud-speaking equipment. Telephone connection was established between the instrument on the stage and the loud-speaking equipment behind the scenes and a real conversation carried on.

Extension Program of Atlanta Telephone & Telegraph Co.

On the cover page of the latest issue of the "Atlanta Phone Register," appears the following statement by A. B. Conklin, vice-president and general manager of the Atlanta Telephone & Telegraph Co., of Atlanta, Ga., outlining the company's plans for extensions and improvements for the coming year:

During the past month important adjustments and agreements have been entered into between the bond and stockholders of the Atlanta Telephone & Telegraph Co., which will include all the litigation that has been pending during the past three years between the various internal interests in our company.

The consummation of the agreements and the conclusion of the legal details will provide a large amount of money for the extension of our service during the coming year.

One of the important additions will be the building of a new exchange, situated on a lot belonging to this company at the corner of Moreland and DeKalb Avenue. This exchange will be called "Moreland" and will cover territory including Inman Park, Edgewood, parts of Kirkwood, and East Atlanta.

The demands for our service in this territory have long since exceeded the capacity we have had available, and the establishment of this new sub-exchange will put the company in a position to furnish straight line service to many subscribers who are now compelled to use party lines, and will afford ample facilities to care for the large number of applications for our service.

This proposed addition is a great stride forward and will add materially to the value of the service, particularly for the business and professional man whose connections make desirable a comprehensive telephone service in the localities above mentioned.

The completion of this extension will be followed immediately by other extensions at points where our present facilities have been limited, and inside of 12 months a sufficient amount of additional facilities will be available to care for the requirements in all congested districts and furnish a very large increase in our list of subscribers.

From Factory and Salesroom

Conventions: Tri-State, Jackson, Tenn., May 19, 20; Railway Telegraph Superintendents, New Orleans, May 19, 20, 21 and 22

A New Cedar Pole Company.

The Mankin Lumber & Pole Co., of Ymir, B. C., Canada, is a strong company which has been organized to do a general cedar pole and lumber business. Although a new company, still the men who are interested in it have been thoroughly trained and developed along the lines to make a "successful" company.

Robert Mankin, who has been elected president of the company, is a Virginian and is interested in the following companies which are located in West Virginia: C. C. Huddleston Lumber Co., Mankin Construction Co., and the Mankin Lumber Co.

C. Mankin, of Beckley, W. Va., is vice-president, and Samuel Huddleston, of Nelson, B. C., is secretary and treasurer. C. W. Dillon, of Fayettville, W. Va., a prominent lawyer, will also serve as director.

The company is especially fortunate to have Neil Burrell act as manager of its cedar department. Ripe in experience, enthusiastic, and a well posted man, it is certain that he will make this important department of the company profitable and successful. Mr. Burrell was formerly an official in the Tri-State Cedar Co., of Coeur de'Alene, Idaho.

The Kellogg Company at Kansas City Convention.

Some interesting features of the latest Kellogg equipment were exhibited, and aroused much interest, judging by the crowds of visitors, at the Missouri convention last week at the Sexton Hotel, Kansas City. The first thing to be noted on entering the Kellogg exhibit room was a large sign above a neat, spick and span switchboard, reading: "The second best board in the world is an old Kellogg tuned up. They never wear out." This board, Mr. Faris, manager of the Kellogg's Kansas City office, said "has just finished 12 consecutive years of hard service" and "has been sold to begin another 12-year record."

Although the board looked practically brand new and could hardly be picked out, so far as the cabinet and apparatus went, from the other boards in the room, all that had been done to it, after a thorough cleaning, was the addition of some new jack thimbles, a few springs, lacquer on the shutters and a coat of varnish.

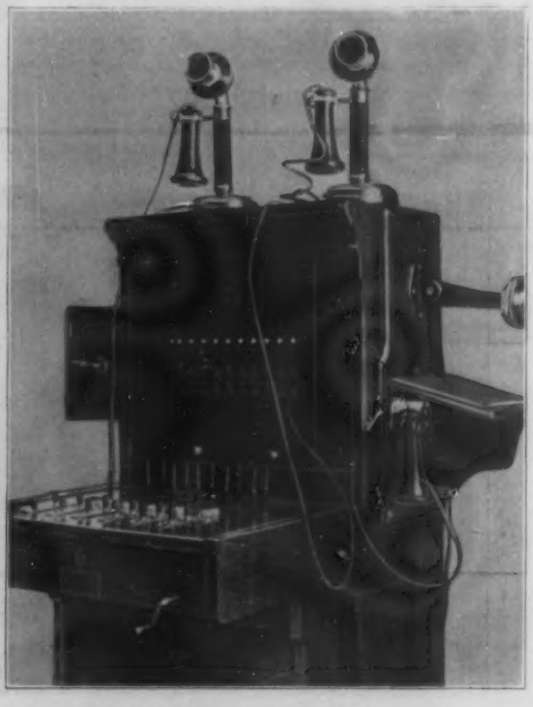
H. N. Faris, Kansas City Manager.

On the demonstration panels were shown the Kellogg direct harmonic system wall sets, illustrating among other advantages, how four telephones can be operated selectively on a metallic circuit with no grounds at the subscriber's station or at the central office; how four telephones can be operated selectively on a one-wire grounded line, and how eight telephones can be operated selectively on a full metallic circuit by bridging four bells from each side of line to ground. With this system the subscriber calls "Central" and "rings off" without disturbing any of the bells on the line, nor will any bell on the selective line be disturbed by a ring coming from any connected

The "Second Best Board."

H. A. White.

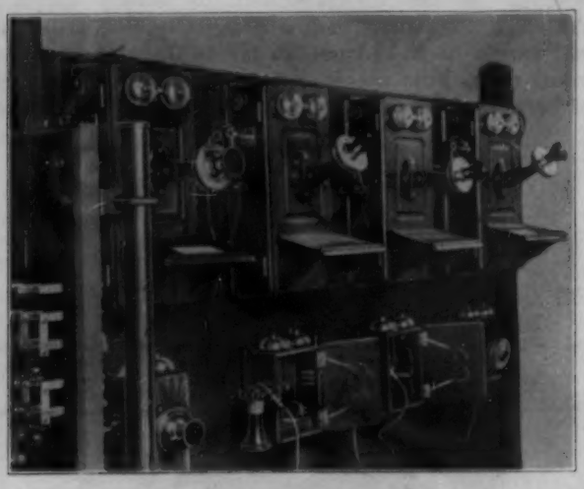
Herbert Clark.



Universal Demonstration Board.

line. "Central" is the only person who can ring a bell on any selective line, and it is said to be impossible for her to ring more than one party on any selective line at a time.

The sets receiving the most attention, perhaps, were the new Kellogg universal type instruments. It was said that the



Kellogg Universal Sets.

general opinion of all who saw them is that they are the neatest and most sensible design of magneto telephones that has been produced, it being stated that every improvement experience could reveal, has been incorporated. For instance, the transmitter arm has been shortened one-half, and an improved switchhook added. They are equipped with the standard Kellogg transmitter of the high resistance type, which is claimed to give increased talking efficiency with prolonged life for batteries.

In the new set, which is reduced in size and depth, binding posts are placed inside the cabinet, doing away with the risk of short circuits and attendant troubles. The small size of these telephone sets renders them most suitable as "convertible-to-common-battery" sets and it is expected that this type will be the standard equipment of the future.

For the managers of larger exchanges the wonderful

J. H. Martin.

compact universal board was an attraction. No man, from beginner to veteran in the business, could but be impressed with the tangible evidence of superiority which is claimed for this Kellogg improvement.

There were connected to this board magneto and common battery sets, coming in on lamp signal lines, giving equally efficient service to either. From the operator's standpoint everything about a call is known and supervision is prompt and accurate. The most important feature of this type of board is that magneto subscribers can be changed to common battery lines as desired, one line at a time, thus making an increase in rates and a betterment in service possible from the start and this, without change in the board or apparatus. This universal board, while thoroughly tried in the test of actual long time service, is new to many. The Kellogg company will be glad to give fullest details to those interested.

H. N. Faris, manager of Kansas City branch office of the Kellogg company, was in charge of the exhibit. He was assisted by H. A. White, Herbert Clark, J. H. Martin and Edw. I. Pratt. Much interest was aroused in "subscriber campaigns" by the Kellogg slide and plate advertising series.

An automobile enabled many visitors to inspect the Kellogg branch office and warehouse at 407 Broadway.

The Call-A-Phone.

Factory executives who are likely to be in any part of their plants, but who frequently need to be reached from their offices with the minimum of delay, have in the Call-A-Phone, manufactured by the Stromberg-Carlson Telephone Mfg. Co., a system that offers a practical solution of this intercommunicating problem. A new bulletin descriptive of the system has just been issued by the manufacturers.

The Call-A-Phone system comprises an installation of gongs placed at convenient intervals about the plant, on which code signals are automatically rung until the man wanted responds. By its use an executive is never out of reach of the office. The office equipment is contained in a small cabinet which mounts within convenient reach of the operator. It operates entirely by electricity drawn from the storage batteries of the private telephone system or from a battery of dry cells, depending upon local conditions. Any desired number of bells may be used in connection with the Call-A-Phone, although no one circuit should connect more than 15 bells to obtain the best results.

For use in offices or places where the noise from standard shop gongs would be annoying, smaller bells are fitted with fancy gongs or buzzers, if desired. The great value of this device becomes more and more apparent as one contemplates the uses which may be made of it in a modern organization. Bulletin No. 1005, descriptive of the Call-A-Phone system, may be had on application to the Stromberg-Carlson Co., Rochester, N. Y.

Reconstruction Record of General Insulate Co.

General Insulate Co., No. 1008-1014 Atlantic avenue, Brooklyn, N. Y., manufacturer of the well known "Insulate" composition receiver cases, mouthpieces and electrical insulations, recently suffered a severe fire loss, but as the result of splendid enterprise the company's works are rapidly approaching complete running order.

The fire, which occurred on April 25, nearly destroyed the power plant, finishing rooms, part of the press rooms and machine shops and a continuous three-day rainfall made it almost impossible to do any work in the unroofed main factory building; nevertheless within four days after the fire the company had taken a physical inventory of its entire plant covering 2,700 different classifications, comprising about 100 sheets of closely written foolscap paper. On the succeeding Monday the company had installed in temporary quarters its die shops, finishing rooms, etc., and within ten days from the date of the fire had begun to press up "Insulate" composition again and to ship a great many of the numerous styles of articles it makes, to various trades throughout the country.

Reconstruction was started in the old plant almost immediately after the fire and it is the expectation of the General Insulate Co. that before the end of this month it will be in complete running order in all departments in its reconstructed plant.

Paragraphs.

PALMER-MOORE Co., Syracuse, N. Y., Syracuse, N. Y., is sending out a folder illustrating and describing the air-cooled and water-cooled motors used for its motor trucks. These trucks embrace all styles of bodies.

THE ROME WIRE Co., Rome, N. Y., manufacturer of electric wires, has as the subject illustration for its May calendar "The Crimson Plume." The calendars sent out by this company are unusually artistic and are welcomed every month by those who are on the company's mailing list.

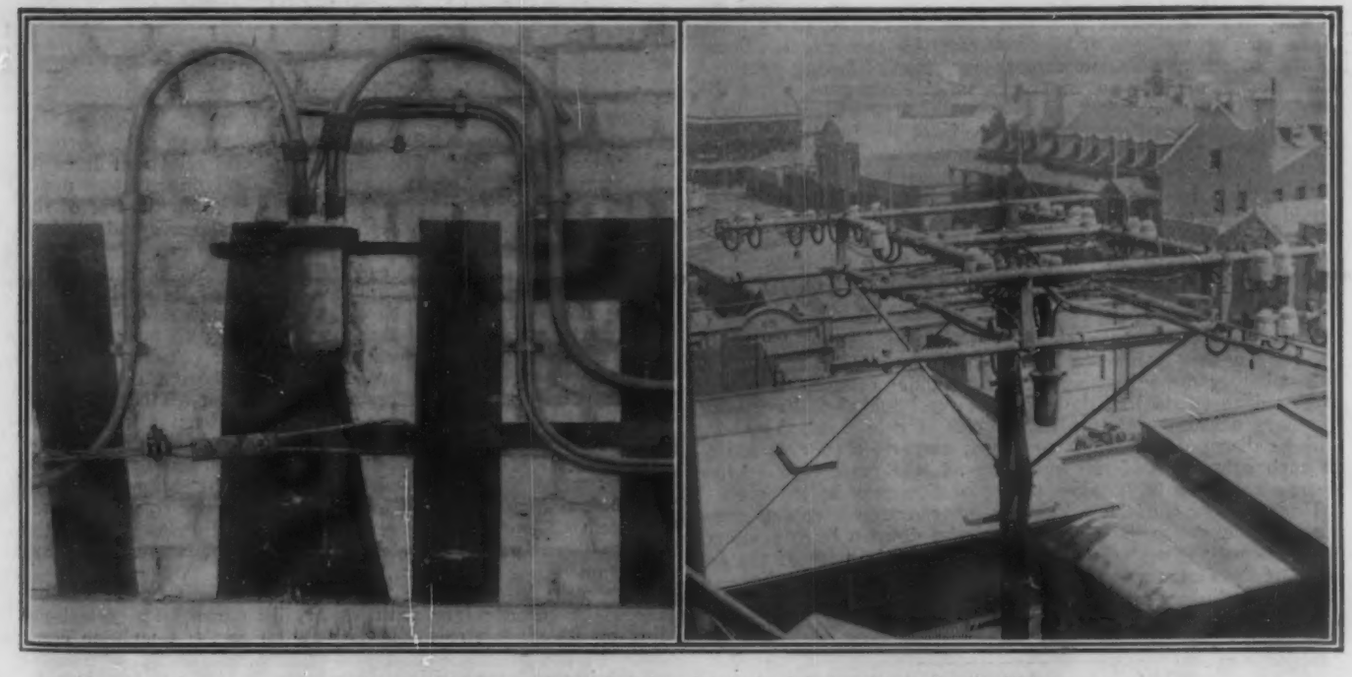
BELDEN MANUFACTURING Co., Chicago, has just issued Bulletin No. 1006, which gives full data on the complete line of standardization bare copper cables and braids manufactured by it. A complete range of sizes is shown, including an entirely new line of cables designed as "Hawser-lay" woven rope effect. These are stranded and laid up by a method that gives the maximum flexibility. The entire line shown in the bulletin has a wide range of applications in the electrical field. Bulletin No. 1003, mentioned heretofore, illustrates the Belden line of tips and terminals that can be used with the Belden cables for pigtails, connectors, etc. These bulletins will be sent on request by the Belden Mfg. Co.

THE F. BISSELL Co., Toledo, Ohio, is sending out a new issue of "The Bissell Book." An interesting feature of this issue is an illustrated description of an Idaho pole drive. May, June and July are the months in which the poles are floated down stream on the swollen, turbulent waters. The company also calls attention to its locust pins, made from select, standard black locust. A useful electrically operated device handled by this company is a portable buffer and polisher, operating on 110 volts direct or alternating current. This is designed for polishing metal trimmings and would be useful for polishing switchboard plugs. Another feature of "The Bissell Book" is a list of bargains in new and old electrical apparatus all of which has been tested and is guaranteed free from mechanical or electrical effects.

Matthews Cable Splicing Joints in South Africa.

The accompanying illustrations show installations of the Matthews cable splicing joints in Johannesburg, South Africa. The photographs were sent to W. N. Matthews & Bro., St. Louis, by Norman Harrison, engineer in chief of the Department of Posts and Telegraph of the Union of South Africa. The Department of Posts and Telegraph has purchased approximately 1,000 of the Matthews cable splicing joints in the past six years. These have been shipped to Algoa Bay, Cape Town, Durbant, East London, Johannesburg and Pretoria. It will be noticed from the illustrations that the telephone line construction employed in South Africa is quite different from that in this country; also that iron poles and porcelain insulators are used.

Construction in South Africa, Matthews Joints a Feature.



Installations of Matthews Cable Splicing Joints in Johannesburg, South Africa.

Legal Cases and Decisions

By A. H. McMillan

Crossing An Established Lead.

"When a second and later company builds lines and crosses the established lead of a telephone company, how high must the second lines clear the existing lines? Can the lines of the second company under any conditions be placed under the lines of the first company at the crossings, without permission from the first company? Is this matter covered by any laws in this state, or are there any court decisions relating to it?"

There is no specified distance that the later established lines must clear the existing ones. The distance that should be left between adjacent wires depends upon the two systems, taking into consideration all the facts and circumstances in each case. The only general rule that can be laid down is that the distance must be such as to be safe and prevent interference between the wires under the circumstances of each case.

Distance between wires should be greater in cities and towns than in the country on account of the greater density of population and larger number of wires in cities and towns. In the country a distance of 10 inches between the nearest wires has been held to be sufficient; in towns a distance of 4 feet between such wires was required. Both of these rulings were made in the same case. Northwestern Telephone Co. vs. Iowa Telephone Co., 98 Northwestern, 113; McMillan on Telephone Law, Section 151. The lines of the second company should not be placed under the line of the first company without permission. Northwestern Telephone Exchange Co. vs. Twin City Telephone Co., 95 Northwestern, 460. The matter is not covered by the Illinois laws, but the above decisions give the general principles.

Payment by Subscribers of Co-operative Company.

"We have a co-operative telephone company which is incorporated under the laws of New York state. Each subscriber owns one share of capital stock and is supposed and has agreed to pay his dues semi-annually. Said dues are laid according to the expenses of paying operator and repairing lines, taxes, etc. No officer or director receives any wages. Some of the subscribers are in arrears for dues. Having received a bill for them, they pay no attention and continue to use the service. Have we, the directors, a right to order our lineman to disconnect these subscribers form the lines when they refuse to pay? Some say we cannot, since each subscriber owns a share in the line?

"We wish to divide some of our lines and in doing so would like to take a new route. Some of the farmers refuse to permit us to set poles along the highway facing their property. Is there any way, under the laws of New York, for us to secure a right of way, providing we do no damage to the property?"

Your directors have a right to disconnect subscribers from lines when they refuse to pay. It does not make any difference whether the subscriber is a stockholder or not. His duty to pay dues exists just the same. You should first have your directors pass a resolution establishing a rule that subscribers will be disconnected when so far in arrears, then give notice to each subscriber of the existence of that resolution. After those steps have been taken the resolution may be inforced.

Under the laws of New York an incorporated telephone company may exercise the right of eminent domain by condemnation proceedings and secure a right of way in spite of the refusal of the farmers to give you permission. In the condemnation proceedings, the amount to be paid by you for damages to each property owner will be determined and must be paid accordingly.

Setting of Poles.

"We have a 20-year franchise. The town made no rules or regulations as to where poles were to be set—no contract whatever. We have two large corner poles, set in the street corners, quite close to the corners where the crossings join. They are heavy lead poles and are anchored. Now the town wishes to place electric street poles where these poles stand. Can they force me to move these poles, making me pay all the expense of moving? Can they make me move them at all?

"Can the town council now pass a town ordinance regulating the setting of poles and stringing of wire, and make me tear up my system which is now on the streets, as long as the poles have stood there for years, out of the way of general traffic? If they can, do I have to pay the expense of changing?"

The fact that the town has made no rules or regulations as to the setting poles, does not prevent the council from making such regulations now. They cannot make regulations arbitrarily, nor arbitrarily require you to move the poles in question, simply to accommodate other poles. If there is a good and valid reason for requiring you to move the poles, the town council may do so and you will have to obey at your own expense. The passing of the town ordinance regulating the setting of poles and stringing of wires, cannot arbitrarily make you re-arrange the poles. Any reasonable regulations that they do make, they can require you to comply with at your expense.

Minority of Injured Lineman.

An action was brought against a telephone company for injuries from the falling of a telephone pole, which the plaintiff, a young man of 17, and others were erecting. A judgment was given in the plaintiff's favor from which the telephone company appealed. The judgment was sustained. The telephone company asked the court to instruct the jury not to consider the plaintiff's minority as affecting the company's negligence in having him do the work, as he was an intelligent young man, capable of understanding the situation as well as a person of maturer years.

The court refused this instruction but told the jury they should find for the company, unless it had been negligent in failing to furnish a reasonably sufficient number of hands to erect the pole with reasonable safety to themselves, or in not furnishing at least appliances reasonably suitable to erect the pole with reasonable safety. The court held that the action of the court in refusing to give the instruction requested by the company was not negligent, in view of the other instructions given. Southwestern Telegraph & Telephone Co. vs. Coffey, 163 Southwestern 112.

Loss of Right to Interfere With Company.

For 15 years the Central District & Printing Telegraph Co. maintained and operated a telephone line through the borough of Homer City, Penn. Permission to build telephone lines on the street of the borough occupied by the company was never given, nor was any general ordinance regulating the use of the streets of the borough by telephone companies ever adopted by the borough.

In 1912 the company, desiring to use other streets of the borough, notified the borough authorities of its wish, stating in the notice that the work of construction would be delayed two weeks to give the borough opportunity to adopt reasonable regulations in connection therewith. A month after this notice, the company presented to the borough authorities a blue print showing the proposed extension of line and asking for its approval. No action having been taken by the borough, the company, some three months later, directed the employes to begin with the work of construction. The employes were threatened with arrest by the burgess of the borough if they attempted to interfere with the streets, so they desisted. The company sued for an injunction to restrain the borough authorities from interfering with the company's construction work.

The court held that the fact that the borough, by laches, lost the right to interfere with the maintenance of a telephone line on its main street, did not authorize the telephone company to extend its lines to other streets without permission of the borough authorities. But it also held the statute making it a condition of the occupancy of streets by a telephone company that the consent of the municipality be first obtained, did not authorize the municipality to withhold its consent arbitrarily or impartially, except for considerations, affecting the public welfare, or to impose unreasonable conditions.

The court refused to assume in the case that the borough authorities in withholding their consent to the proposed extension, had been influenced by other than proper public considerations. Central District & Printing Telegraph Co. vs. Borough of Homer City, 80 Atlantic 681.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued and Any Items of Interest as to Their Plants and Systems

Personal.

W. L. SCHOONOVER has resigned his position as manager of the Peoples Telephone Union, at Maryville, Mo.

H. O. DAVISON, local manager of the Lincoln Telephone & Telegraph Co., at Utica, Neb., has been transferred to Ashland, Neb. L. B. Maple will succeed him at Utica.

HARRY C. KILBURN, chief clerk and cashier of the Olean, N. Y., office of the New York Telephone Co., has been promoted to the management of the Gowanda, N. Y., office of the company.

P. H. HOPKINS, general commercial superintendent of the Missouri & Kansas Telephone Co., has been appointed acting general manager, with headquarters at Kansas City, Mo., to succeed B. S. Read, who has been transferred to St. Louis.

E. H. WILSON, cashier of the Southern Bell Telephone & Telegraph Co., in Charlotte, S. C., has tendered his resignation and will be succeeded by W. L. Crout, of Newberry, S. C. Mr. Wilson served 18 years as manager in Charlotte prior to his appointment as cashier.

L. J. SHAUGHNESSY, of Pittsburgh, has been placed in charge of the commercial department of the Bell Telephone Co. of Pennsylvania, to succeed F. E. Stewart, who will continue in the employ of the company in Oil City, but who will later be transferred to another district.

JOHN L. SCHNITZER, local manager of the Southwestern Telegraph & Telephone Co., at Hannibal, Mo., has tendered his resignation. Mr. Schnitzer has been with the company for nine years, commencing as solicitor, and being promoted step by step to the position of local manager.

H. B. WHATLEY, formerly of Austin, Tex., has been appointed traffic chief of the San Antonio, Tex., district of the Southwestern Telegraph & Telephone Co. Mr. Whatley held a similar position in Austin and is well equipped for his new position. He succeeds R. E. Kenney, who has been transferred to Dallas.

PEARL AHLQUIST, who was recently appointed chief clerk to the general manager of the Lincoln Telephone & Telegraph Co., at Lincoln, Neb., has again been promoted and will become manager of the company's plant at Hastings, Neb. Previous to his appointment as chief clerk, Mr. Ahlquist was manager of the Wymore office.

J. G. WRAY, chief engineer of the Chicago Telephone Co., has received recognition from his Alma Mater by election to the hall of fame of the University of Wisconsin, from which he was graduated in 1893. His picture, together with those of seven others who were thus honored this year, will be hung in the rooms of the Wisconsin Union at the university.

JOHN C. WEIRICK has been appointed assistant general commercial engineer of the Bell Telephone Co. of Pennsylvania, with headquarters in Philadelphia. Mr. Weirick entered the service of the Bell company in 1904 as stenographer and was advanced to clerk, chief clerk and manager of the Harrisburg division, which position he held at the time of his promotion.

BENJAMIN S. READ, formerly general manager of the Missouri & Kansas Telephone Co., with headquarters at Kansas City, Mo., has assumed his new position as second vice-president of the Southwestern Telegraph & Telephone Co., with headquarters at St. Louis, Mo. Mr. Read is but 38 years old and has been in the employ of the Bell company 24 years, starting as toll agent in his father's store at Carthage, Tenn. He was afterward made manager at Carthage, and later was made manager at Owensboro, Ky., New Orleans, La., and division superintendent for Southern Mississippi and Louisiana for the Cumberland Telephone & Telegraph Co.

New Companies and Incorporations.

WILMINGTON, DELA.—The Regional Finance Co. has been incorporated with $2,000,000 capital stock to conduct a general telephone and telegraph business. The incorporators are: H. E. Latter, W. J. Maloney and O. J. Reichard, all of Wilmington.

BENTON, KY.—The Oak Level Telephone Co. has been incorporated by T. H. Hall, H. C. Cox, Joe Woodall and J. W. Park with $1,000 capital stock.

ABSAROKEE, MONT.—Articles of incorporation have been filed by the Roscoe & Absarokee Telephone Co. with $4,000 capital stock. The incorporators are: George Campbell and John W. Brown, of Roscoe, Mont., B. H. Tuttle, Magnus Johnson and E. B. Dixon, of Absarokee.

MILL CREEK, OKLA.—Articles of incorporation have been filed by the National Telephone Co. with $16,000 capital stock. The incorporators are: E. D. Simpkins, S. L. Simpkins, W. H. Curry, J. S. Lester and C. E. Penner, all of Mill Creek.

BOWDLE, S. D.—The Swan Creek Telephone Co. has filed articles of incorporation with $10,000 capital stock. The incorporators are: Suppree J. Commet, Jacob Bollinger and Wm. J. Jarvis, all of Bowdle.

CENTERVILLE, S. D.—The Centerville Telephone Co. has been incorporated with $50,000 capital stock by Jas. S. Thomson, B. J. Bowman and Alan Bogue, Jr., all of Centerville. (Not a new company.)

Construction.

OTTAWA, KANS.—The Kansas City Long Distance Telephone & Telegraph Co. is contemplating the installation of a new telephone system, of the harmonic selective type, in this city, the cost of which is estimated at $50,000.

HAMMOND, IND.—O. A. Kimbill, local manager of the Chicago Telphone Co. in this city, has announced that the contract for the new $12,000 exchange building has been let and work will be started at once. It is planned to occupy the structure within 60 days.

MANKATO, MINN.—The Mankato Citizens Telephone Co. is engaged in extending two toll lines between Mankato and Madison Lake, which will greatly increase the efficiency of the service.

PORTAGE, WIS.—The Portage Telephone Co. has completed plans for the erection of a new brick exchange to cost $8,000. A new switchboard costing $7,500 will also be installed.

Underground.

MCRAE, GA.—Manager W. D. Horton has announced that the McRae-Helena Telephone Co. is placing 6,000 feet of 100-pr. cable underground between Helena, Ga., and this town.

GALVA, IOWA.—The Galva Telephone Exchange is placing all its wires in underground conduit.

BATAVIA, N. Y.—The New York Telephone Co. will place 900 feet of conduit in this city at a cost of about $7,000.

Financial.

CATAWISSA, PA.—At the annual meeting of the Farmers Union Telephone Co. a 6 per cent. dividend was declared.

Elections.

NEW YORK, N. Y.—At the annual meeting of the stockholders of the New York Telephone Co. Otis H. Cutler and Edwin P. Maynard were elected directors, to succeed William H. Woolverton and Theodore F. Miller, deceased.

PORTSMOUTH, OHIO.—At the annual meeting of the stockholders of the Portsmouth Telephone Co. the following directors were elected to serve during the ensuing year: Levi D. York, Dr. W. D. Tremper, William Scott McKell, Harvey M. Allen, W. V. Schwartzbaugh, R. W. Manly and W. R. Fee. Officers were elected as follows at a subsequent meeting of the board of directors: President, Levi D. York; vice-president, Dr. W. D. Tremper; treasurer, William Scott McKell; secretary and general manager, Harvey M. Allen. Toll connections have recently been established with the Farmers' Telephone Co. and with the Fullerton Home Telephone Co., at Fullerton, Ky. The company will string about 5,000 feet of cable and make a number of improvements to its system

KILLEEN, TEX.—At the annual meeting of the stockholders of the Killeen Rural Telephone Co. the following directors were elected for the coming year: W. J. D. Bradford, I. F. Hayse, W. C. Evans, H. C. Smith, J. J. Bishop, D. R. Walker and Freeman George. At a subsequent meeting of the directors the following officers were elected: W. J. D. Bradford, president; J. J. Bishop, secretary, and H. C. Smith, treasurer. John Seay was re-appointed manager. Many improvements and extensions to the plant are planned for the coming year.

Carrying 30 feet 3-inch socket joint conduit.

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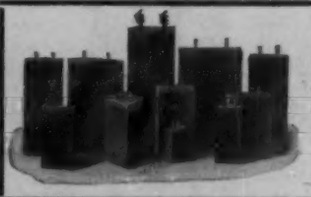

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you will find none better than the
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We produce in our own Forests.
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WANTED—Old receivers without cases, transmitters, switchboard drops and drop coils, induction coils, ringer movements, generator armatures, etc. Any condition. The Suttle Equipment Co., Olney, Ill.

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WANTED—Well educated, married man, with 12 years' experience in all branches of magneto system, desires position as manager of a small telephone exchange. Good references. Address Box 365, Fosston, Minn.

WANTED—Position as manager and troubleman of small exchange. West preferred. Best of references. Address 1773, care TELEPHONY.

WANTED—Position as manager of either common battery or magneto exchange. Well qualified to make good. Twelve years' experience, plant and commercial. At present employed. Married. Let me write you. Address 1768, care TELEPHONY.

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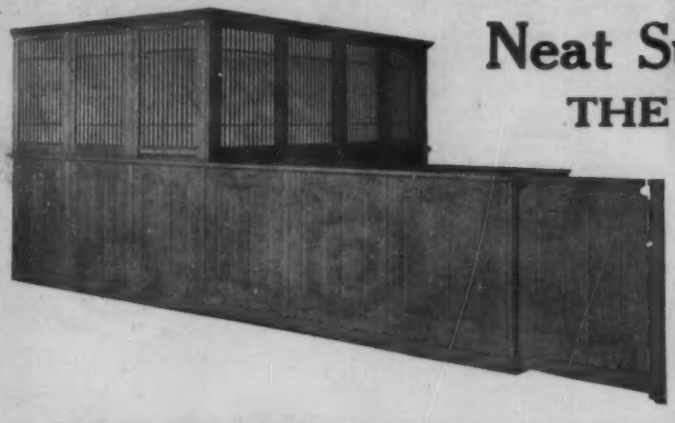

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B10, H1, M12.

Cable Splicing Joints
M12.

Cable Terminal
C38, H1, R4.

Carbon
F14, M5, N17.

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B15, C3, N2, P7, S25.

Clamps, Guy
C38, C47, E20, H8, L4, M12, N9, R4.

Climbers
C27, K8, S15.

Clips, Cable
A25, C38, M12.

Clips, Testing
F11.

Clocks
R17, S38, W1.

Compcaition, Insulation
E11, G2, S9.

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S14.

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A13, A25, E6, M7.

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M12.

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Fibre
C35.

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F10.

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A25, B4, B7, B13, B15, B22, D18, H6.

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W2.

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Guy Clamps (See Clamps, Guy)

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D5.

Instruments, Cable (Fault Finding)
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N1.

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The letter with accompanying number indicates the name of advertiser as given in full in the Alphabetical Index to Advertisers, on the opposite page. *When making known your wants* to any company listed herein, please mention TELEPHONY.

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Operators' Supervising Sets
A25.

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S13.

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Pay Stations
D5.

Pins and Brackets
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Pipe Locater
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B2.

Pole Changers
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H6, T10.

Trouble Finders
E9, M12, S32.

Wire for all uses, Piano, Aeroplane, Mattress, Broom, Fence, etc.
A16.

Wire, Copper
A15, A16, R9, S23.

Wire, Copper Clad
R9, S23.

Wire, Enameled
A16, A25, E4, M28.

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Wire Rope
A16, R4.

Wire, Weatherproof
A16, D6, I5, M22, O1, P7, R9, R11, S12, S23.

The L & N Type S Portable Testing Set

Accurate—Rugged—Inexpensive

At no sacrifice of quality or accuracy we are now producing an inexpensive Dial Decade Testing Set. The low price of this set is made possible because of a design which has been carefully worked out to admit of advantageous manufacture of parts in quantities. Further, the design is such that assembling is easily and quickly done. Accuracy and the usual Leeds & Northrup reliability have been retained. Our guarantee is behind every set.

Price $60

Let us Send you Bulletin No. 530. It describes the set in detail.

The Leeds and Northrup Co. 4901 Stenton Ave., Philadelphia, Pa.

Are You in the Telephone Game for Fun or for Profit?

Does Local Pride Satisfy Your Stockholders, or Do They Want Cash Dividends?

Whatever the Situation May Be, the

Completely Meets the Requirements

The Automatic insures you profits by enabling your plant to earn more money with less expense. Furthermore, it frees you from the worries due to operators, the strikers, complaints and other troubles they cause.

The Automatic gives a service which satisfies subscribers and is a source of pride to the owners of the company. And in addition, it guarantees stable and substantial dividends.

It has done it for others—it can do it for you

Automatic Electric Company
Chicago

MILLIONS Of Dry Cells Are Handled In This Territory

FRENCH Telephone Cells

Are Manufactured and Shipped

Direct from Madison, Wis.

There is no reason why the dry cells *you* use should get old in transportation and stock rooms before you install them.

Your orders will be shipped the day received.

Send for new price schedule.

FRENCH BATTERY & CARBON CO.
Madison, Wis.

For New Construction or "Re-Hooking"

CAMERON CABLE RINGS

ARE UNEXCELLED

"Be from Missouri"
Write Us

Cameron Appliance Co.
Station A Everett, Mass.

Welding a joint would be the ideal solution but it's not practical —the very next best method is to use

NATIONAL

Double Tube Wire Connectors

They make a splice that is stronger than the line itself, and come closer to giving you a welded joint than any other method. Easily handled, enabling your lineman to increase his efficiency and your profits.

Stock up now.

National Telephone Supply Co.
Cleveland, Ohio

One Man Instead of Five!

That's the labor-saving advantage of

The "EICHHOFF"

Combined Take-Up and Pay-Out Reel

The "Eichhoff" New Way: One Man Does the Work

It saves time and labor in handling wire on the line. It obviates the need of two reels—one to pay-out and one take up the wire. Adjustable reel arms enable coil of wire to be easily removed. No level place needed; clamp the reel to a pole or post; one man can operate it because the adjustable wire guide, the hub-brake and the reel disc stop-pin help him to do the work of three or four assistants.

Write for full information about the New Reel. Address

Mathias Klein & Sons
Canal Station 34 Chicago, Ill.

Catalog and Pocket Tool Guide Sent Free on Reques

AMERICAN ELECTRIC CO.

Telephones, Switchboards, and Accessories

Write for Catalog, Stating Your Needs.

State and 64th Sts. CHICAGO, U. S. A.
(ENGLEWOOD STATION)

BAKELITE-DILECTO
Waterproof - Permanent - Strong
A laminated *Insulating* material of highest efficiency
Also
VULCANIZED FIBRE
In Sheets-Rods-Tubes-Special Shapes
THE CONTINENTAL FIBRE CO., Newark, Delaware
CHICAGO, McCormick Bldg. NEW YORK Woolworth Bldg.

A HANDY SCREW DRIVER
Adapted to Telephone work. Look for Trade Mark. Every tool perfect.
Send four cents postage for new catalog.
Ⓗ HARGRAVE
THE CINCINNATI TOOL CO. (Tele. Dept.) Norwood, CINCINNATI, O.

Unlimited Number of Stations on a Circuit

and operated with the minimum number of current impulses are two important features of

Gill Selectors

The Gill Selector has but one electro-magnet; one contact and no passing contacts, and has the widest range of operating current of any selector device.

Illustrations, circuits and full information in our Bulletin No. 501.

Hall Switch & Signal Company
50 Church Street, New York
Chicago Works—Garwood, N. J. Montreal

Is It Worth While
to make and inspect
SIMPLEX
Telephone Wires and Cables
as carefully as we do? We think so. We believe our reputation depends on the continued maintenance of our high standards of quality.

SIMPLEX Wire & Cable Co.
201 Devonshire St., BOSTON
Chicago San Francisco
(48-143)

Pignolet
Voltmeters Ammeters Volt-ammeters
make telephone testing easy and exact. Stand hard use. Quality and price make them first choice of telephone men. Write for Pignolet Catalog and Directions for Testing.
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PLATINUM
Wire, Sheet, Rivets and Contacts
Send for Literature
Baker & Co., Inc., Newark, N. J.
N. Y. Office: 30 Church St.

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Our conduit after 30 years still in service—no concrete—no breakage.
ALL KINDS OF CREOSOTED MATERIALS
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Office: 50 Church St., N. Y.
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DETROIT RUBBER COVERED WIRES
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Telephone Wires a Specialty
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DETROIT Michigan

Rome Wire Company
ROME, N. Y.
Rubber Covered
TELEPHONE WIRES

B-O-O-K--K-E-E-P-I-N-G
"AUDITING"
Meets requirements of all Commissions
"Coffey-System" Pythian Bldg. Indianapolis, Ind.

SCHWARZE EXTENSION BELLS
The "Popular" Bells for Telephone Service. The best for any condition. Durable—Weatherproof—Ring loud and clear.
SCHWARZE ELECTRIC CO.
ADRIAN, MICH.

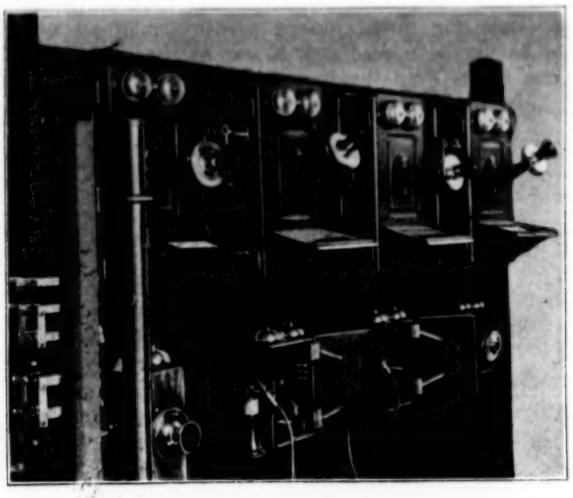
EVERSTICK ANCHORS
Anchor Closed

Have the greatest holding power. More "Eversticks" used than all other patented anchors. *There's a reason.* Write for literature.
Anchor Expanded

Everstick Anchor Co.
ST. LOUIS, Mo.

line. "Central" is the only person who can ring a bell on any selective line, and it is said to be impossible for her to ring more than one party on any selective line at a time.

The sets receiving the most attention, perhaps, were the new Kellogg universal type instruments. It was said that the



Kellogg Universal Sets.

general opinion of all who saw them is that they are the neatest and most sensible design of magneto telephones that has been produced, it being stated that every improvement experience could reveal, has been incorporated. For instance, the transmitter arm has been shortened one-half, and an improved switchhook added. They are equipped with the standard Kellogg transmitter of the high resistance type, which is claimed to give increased talking efficiency with prolonged life for batteries.

In the new set, which is reduced in size and depth, binding posts are placed inside the cabinet, doing away with the risk of short circuits and attendant troubles. The small size of these telephone sets renders them most suitable as "convertible-to-common-battery" sets and it is expected that this type will be the standard equipment of the future.

For the managers of larger exchanges the wonderful

J. H. Martin.

compact universal board was an attraction. No man, from beginner to veteran in the business, could but be impressed with the tangible evidence of superiority which is claimed for this Kellogg improvement.

There were connected to this board magneto and common battery sets, coming in on lamp signal lines, giving equally efficient service to either. From the operator's standpoint everything about a call is known and supervision is prompt and accurate. The most important feature of this type of board is that magneto subscribers can be changed to common battery lines as desired, one line at a time, thus making an increase in rates and a betterment in service possible from the start and this, without change in the board or apparatus. This universal board, while thoroughly tried in the test of actual long time service, is new to many. The Kellogg company will be glad to give fullest details to those interested.

H. N. Faris, manager of Kansas City branch office of the Kellogg company, was in charge of the exhibit. He was assisted by H. A. White, Herbert Clark, J. H. Martin and Edw. I. Pratt. Much interest was aroused in "subscriber campaigns" by the Kellogg slide and plate advertising series.

An automobile enabled many visitors to inspect the Kellogg branch office and warehouse at 407 Broadway.

The Call-A-Phone.

Factory executives who are likely to be in any part of their plants, but who frequently need to be reached from their offices with the minimum of delay, have in the Call-A-Phone, manufactured by the Stromberg-Carlson Telephone Mfg. Co., a system that offers a practical solution of this intercommunicating problem. A new bulletin descriptive of the system has just been issued by the manufacturers.

The Call-A-Phone system comprises an installation of gongs placed at convenient intervals about the plant, on which code signals are automatically rung until the man wanted responds. By its use an executive is never out of reach of the office. The office equipment is contained in a small cabinet which mounts within convenient reach of the operator. It operates entirely by electricity drawn from the storage batteries of the private telephone system or from a battery of dry cells, depending upon local conditions. Any desired number of bells may be used in connection with the Call-A-Phone, although no one circuit should connect more than 15 bells to obtain the best results.

For use in offices or places where the noise from standard shop gongs would be annoying, smaller bells are fitted with fancy gongs or buzzers, if desired. The great value of this device becomes more and more apparent as one contemplates the uses which may be made of it in a modern organization. Bulletin No. 1005, descriptive of the Call-A-Phone system, may be had on application to the Stromberg-Carlson Co., Rochester, N. Y.

Reconstruction Record of General Insulate Co.

General Insulate Co., No. 1008-1014 Atlantic avenue, Brooklyn, N. Y., manufacturer of the well known "Insulate" composition receiver cases, mouthpieces and electrical insulations, recently suffered a severe fire loss, but as the result of splendid enterprise the company's works are rapidly approaching complete running order.

The fire, which occurred on April 25, nearly destroyed the power plant, finishing rooms, part of the press rooms and machine shops and a continuous three-day rainfall made it almost impossible to do any work in the unroofed main factory building; nevertheless within four days after the fire the company had taken a physical inventory of its entire plant covering 2,700 different classifications, comprising about 100 sheets of closely written foolscap paper. On the succeeding Monday the company had installed in temporary quarters its die shops, finishing rooms, etc., and within ten days from the date of the fire had begun to press up "Insulate" composition again and to ship a great many of the numerous styles of articles it makes, to various trades throughout the country.

Reconstruction was started in the old plant almost immediately after the fire and it is the expectation of the General Insulate Co. that before the end of this month it will be in complete running order in all departments in its reconstructed plant.

Paragraphs.

PALMER-MOORE CO., Syracuse, N. Y., Syracuse, N. Y., is sending out a folder illustrating and describing the air-cooled and water-cooled motors used for its motor trucks. These trucks embrace all styles of bodies.

THE ROME WIRE CO., Rome, N. Y., manufacturer of electric wires, has as the subject illustration for its May calendar "The Crimson Plume." The calendars sent out by this company are unusually artistic and are welcomed every month by those who are on the company's mailing list.

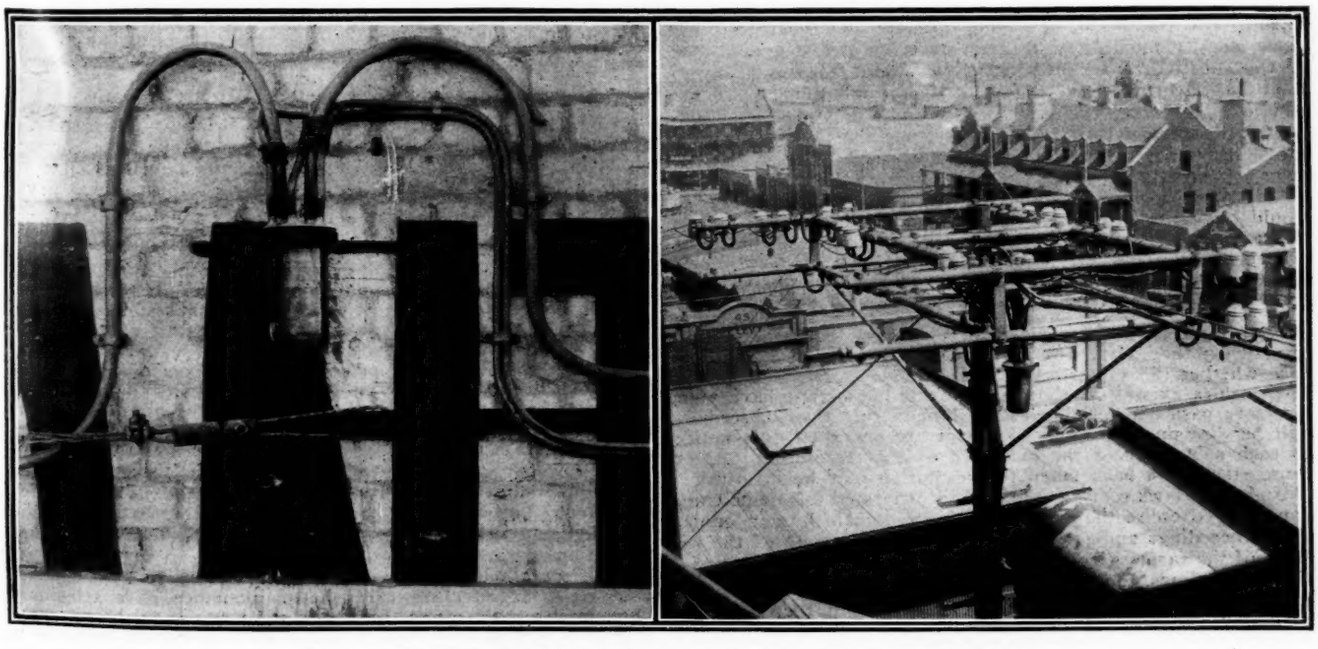
BELDEN MANUFACTURING CO., Chicago, has just issued Bulletin No. 1006, which gives full data on the complete line of standardization bare copper cables and braids manufactured by it. A complete range of sizes is shown, including an entirely new line of cables designed as "Hawser-lay" woven rope effect. These are stranded and laid up by a method that gives the maximum flexibility. The entire line shown in the bulletin has a wide range of applications in the electrical field. Bulletin No. 1003, mentioned heretofore, illustrates the Belden line of tips and terminals that can be used with the Belden cables for pigtails, connectors, etc. These bulletins will be sent on request by the Belden Mfg. Co.

THE F. BISSELL CO., Toledo, Ohio, is sending out a new issue of "The Bissell Book." An interesting feature of this issue is an illustrated description of an Idaho pole drive. May, June and July are the months in which the poles are floated down stream on the swollen, turbulent waters. The company also calls attention to its locust pins, made from select, standard black locust. A useful electrically operated device handled by this company is a portable buffer and polisher, operating on 110 volts direct or alternating current. This is designed for polishing metal trimmings and would be useful for polishing switchboard plugs. Another feature of "The Bissell Book" is a list of bargains in new and old electrical apparatus all of which has been tested and is guaranteed free from mechanical or electrical effects.

Matthews Cable Splicing Joints in South Africa.

The accompanying illustrations show installations of the Matthews cable splicing joints in Johannesburg, South Africa. The photographs were sent to W. N. Matthews & Bro., St. Louis, by Norman Harrison, engineer in chief of the Department of Posts and Telegraph of the Union of South Africa. The Department of Posts and Telegraph has purchased approximately 1,000 of the Matthews cable splicing joints in the past six years. These have been shipped to Algoa Bay, Cape Town, Durbant, East London, Johannesburg and Pretoria. It will be noticed from the illustrations that the telephone line construction employed in South Africa is quite different from that in this country; also that iron poles and porcelain insulators are used.

Construction in South Africa, Matthews Joints a Feature.



Installations of Matthews Cable Splicing Joints in Johannesburg, South Africa.

Legal Cases and Decisions

By A. H. McMillan

Crossing An Established Lead.

"When a second and later company builds lines and crosses the established lead of a telephone company, how high must the second lines clear the existing lines? Can the lines of the second company under any conditions be placed under the lines of the first company at the crossings, without permission from the first company? Is this matter covered by any laws in this state, or are there any court decisions relating to it?"

There is no specified distance that the later established lines must clear the existing ones. The distance that should be left between adjacent wires depends upon the two systems, taking into consideration all the facts and circumstances in each case. The only general rule that can be laid down is that the distance must be such as to be safe and prevent interference between the wires under the circumstances of each case.

Distance between wires should be greater in cities and towns than in the country on account of the greater density of population and larger number of wires in cities and towns. In the country a distance of 10 inches between the nearest wires has been held to be sufficient; in towns a distance of 4 feet between such wires was required. Both of these rulings were made in the same case. Northwestern Telephone Co. vs. Iowa Telephone Co., 98 Northwestern, 113; McMillan on Telephone Law, Section 151. The lines of the second company should not be placed under the line of the first company without permission. Northwestern Telephone Exchange Co. vs. Twin City Telephone Co., 95 Northwestern, 460. The matter is not covered by the Illinois laws, but the above decisions give the general principles.

Payment by Subscribers of Co-operative Company.

"We have a co-operative telephone company which is incorporated under the laws of New York state. Each subscriber owns one share of capital stock and is supposed and has agreed to pay his dues semi-annually. Said dues are laid according to the expenses of paying operator and repairing lines, taxes, etc. No officer or director receives any wages. Some of the subscribers are in arrears for dues. Having received a bill for them, they pay no attention and continue to use the service. Have we, the directors, a right to order our lineman to disconnect these subscribers form the lines when they refuse to pay? Some say we cannot, since each subscriber owns a share in the line?

"We wish to divide some of our lines and in doing so would like to take a new route. Some of the farmers refuse to permit us to set poles along the highway facing their property. Is there any way, under the laws of New York, for us to secure a right of way, providing we do no damage to the property?"

Your directors have a right to disconnect subscribers from lines when they refuse to pay. It does not make any difference whether the subscriber is a stockholder or not. His duty to pay dues exists just the same. You should first have your directors pass a resolution establishing a rule that subscribers will be disconnected when so far in arrears, then give notice to each subscriber of the existence of that resolution. After those steps have been taken the resolution may be inforced.

Under the laws of New York an incorporated telephone company may exercise the right of eminent domain by condemnation proceedings and secure a right of way in spite of the refusal of the farmers to give you permission. In the condemnation proceedings, the amount to be paid by you for damages to each property owner will be determined and must be paid accordingly.

Setting of Poles.

"We have a 20-year franchise. The town made no rules or regulations as to where poles were to be set—no contract whatever. We have two large corner poles, set in the street corners, quite close to the corners where the crossings join. They are heavy lead poles and are anchored. Now the town wishes to place electric street poles where these poles stand. Can they force me to move these poles, making me pay all the expense of moving? Can they make me move them at all?

"Can the town council now pass a town ordinance regulating the setting of poles and stringing of wire, and make me tear up my system which is now on the streets, as long as the poles have stood there for years, out of the way of general traffic? If they can, do I have to pay the expense of changing?"

The fact that the town has made no rules or regulations as to the setting poles, does not prevent the council from making such regulations now. They cannot make regulations arbitrarily, nor arbitrarily require you to move the poles in question, simply to accommodate other poles. If there is a good and valid reason for requiring you to move the poles, the town council may do so and you will have to obey at your own expense. The passing of the town ordinance regulating the setting of poles and stringing of wires, cannot arbitrarily make you re-arrange the poles. Any reasonable regulations that they do make, they can require you to comply with at your expense.

Minority of Injured Lineman.

An action was brought against a telephone company for injuries from the falling of a telephone pole, which the plaintiff, a young man of 17, and others were erecting. A judgment was given in the plaintiff's favor from which the telephone company appealed. The judgment was sustained. The telephone company asked the court to instruct the jury not to consider the plaintiff's minority as affecting the company's negligence in having him do the work, as he was an intelligent young man, capable of understanding the situation as well as a person of maturer years.

The court refused this instruction but told the jury they should find for the company, unless it had been negligent in failing to furnish a reasonably sufficient number of hands to erect the pole with reasonable safety to themselves, or in not furnishing at least appliances reasonably suitable to erect the pole with reasonable safety. The court held that the action of the court in refusing to give the instruction requested by the company was not negligent, in view of the other instructions given. Southwestern Telegraph & Telephone Co. vs. Coffey, 163 Southwestern 112.

Loss of Right to Interfere With Company.

For 15 years the Central District & Printing Telegraph Co. maintained and operated a telephone line through the borough of Homer City, Penn. Permission to build telephone lines on the street of the borough occupied by the company was never given, nor was any general ordinance regulating the use of the streets of the borough by telephone companies ever adopted by the borough.

In 1912 the company, desiring to use other streets of the borough, notified the borough authorities of its wish, stating in the notice that the work of construction would be delayed two weeks to give the borough opportunity to adopt reasonable regulations in connection therewith. A month after this notice, the company presented to the borough authorities a blue print showing the proposed extension of line and asking for its approval. No action having been taken by the borough, the company, some three months later, directed the employes to begin with the work of construction. The employes were threatened with arrest by the burgess of the borough if they attempted to interfere with the streets, so they desisted. The company sued for an injunction to restrain the borough authorities from interfering with the company's construction work.

The court held that the fact that the borough, by laches, lost the right to interfere with the maintenance of a telephone line on its main street, did not authorize the telephone company to extend its lines to other streets without permission of the borough authorities. But it also held the statute making it a condition of the occupancy of streets by a telephone company that the consent of the municipality be first obtained, did not authorize the municipality to withhold its consent arbitrarily or impartially, except for considerations, affecting the public welfare, or to impose unreasonable conditions.

The court refused to assume in the case that the borough authorities in withholding their consent to the proposed extension, had been influenced by other than proper public considerations. Central District & Printing Telegraph Co. vs. Borough of Homer City, 80 Atlantic 681.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued and Any Items of Interest as to Their Plants and Systems

Personal.

W. L. SCHOONOVER has resigned his position as manager of the Peoples Telephone Union, at Maryville, Mo.

H. O. DAVISON, local manager of the Lincoln Telephone & Telegraph Co., at Utica, Neb., has been transferred to Ashland, Neb. L. B. Maple will succeed him at Utica.

HARRY C. KILBURN, chief clerk and cashier of the Olean, N. Y., office of the New York Telephone Co., has been promoted to the management of the Gowanda, N. Y., office of the company.

P. H. HOPKINS, general commercial superintendent of the Missouri & Kansas Telephone Co., has been appointed acting general manager, with headquarters at Kansas City, Mo., to succeed B. S. Read, who has been transferred to St. Louis.

E. H. WILSON, cashier of the Southern Bell Telephone & Telegraph Co., in Charlotte, S. C., has tendered his resignation and will be succeeded by W. L. Crout, of Newberry, S. C. Mr. Wilson served 18 years as manager in Charlotte prior to his appointment as cashier.

L. J. SHAUGHNESSY, of Pittsburgh, has been placed in charge of the commercial department of the Bell Telephone Co. of Pennsylvania, to succeed F. E. Stewart, who will continue in the employ of the company in Oil City, but who will later be transferred to another district.

JOHN L. SCHNITZER, local manager of the Southwestern Telegraph & Telephone Co., at Hannibal, Mo., has tendered his resignation. Mr. Schnitzer has been with the company for nine years, commencing as solicitor, and being promoted step by step to the position of local manager.

H. B. WHATLEY, formerly of Austin, Tex., has been appointed traffic chief of the San Antonio, Tex., district of the Southwestern Telegraph & Telephone Co. Mr. Whatley held a simlar position in Austin and is well equipped for his new position. He succeeds R. E. Kenney, who has been transferred to Dallas.

PEARL AHLQUIST, who was recently appointed chief clerk to the general manager of the Lincoln Telephone & Telegraph Co., at Lincoln, Neb., has again been promoted and will become manager of the company's plant at Hastings, Neb. Previous to his appointment as chief clerk, Mr. Ahlquist was manager of the Wymore office.

J. G. WRAY, chief engineer of the Chicago Telephone Co., has received recognition from his Alma Mater by election to the hall of fame of the University of Wisconsin, from which he was graduated in 1893. His picture, together with those of seven others who were thus honored this year, will be hung in the rooms of the Wisconsin Union at the university.

JOHN C. WEIRICK has been appointed assistant general commercial engineer of the Bell Telephone Co. of Pennsylvania, with headquarters in Philadelphia. Mr. Weirick entered the service of the Bell company in 1904 as stenographer and was advanced to clerk, chief clerk and manager of the Harrisburg division, which position he held at the time of his promotion.

BENJAMIN S. READ, formerly general manager of the Missouri & Kansas Telephone Co., with headquarters at Kansas City, Mo., has assumed his new position as second vice-president of the Southwestern Telegraph & Telephone Co., with headquarters at St. Louis, Mo. Mr. Read is but 38 years old and has been in the employ of the Bell company 24 years, starting as toll agent in his father's store at Carthage, Tenn. He was afterward made manager at Carthage, and later was made manager at Owensboro, Ky., New Orleans, La., and division superintendent for Southern Mississippi and Louisiana for the Cumberland Telephone & Telegraph Co.

New Companies and Incorporations.

WILMINGTON, DELA.—The Regional Finance Co. has been incorporated with $2,000,000 capital stock to conduct a general telephone and telegraph business. The incorporators are: H. E. Latter, W. J. Maloney and O. J. Reichard, all of Wilmington.

BENTON, KY.—The Oak Level Telephone Co. has been incorporated by T. H. Hall, H. C. Cox, Joe Woodall and J. W. Park with $1,000 capital stock.

ABSAROKEE, MONT.—Articles of incorporation have been filed by the Roscoe & Absarokee Telephone Co. with $4,000 capital stock. The incorporators are: George Campbell and John W. Brown, of Roscoe, Mont., B. H. Tuttle, Magnus Johnson and E. B. Dixon, of Absarokee.

MILL CREEK, OKLA.—Articles of incorporation have been filed by the National Telephone Co. with $16,000 capital stock. The incorporators are: E. D. Simpkins, S. L. Simpkins, W. H. Curry, J. S. Lester and C. E. Penner, all of Mill Creek.

BOWDLE, S. D.—The Swan Creek Telephone Co. has filed articles of incorporation with $10,000 capital stock. The incorporators are: Suppree J. Commet, Jacob Bollinger and Wm. J. Jarvis, all of Bowdle.

CENTERVILLE, S. D.—The Centerville Telephone Co. has been incorporated with $50,000 capital stock by Jas. S. Thomson, B. J. Bowman and Alan Bogue, Jr., all of Centerville. (Not a new company.)

Construction.

OTTAWA, KANS.—The Kansas City Long Distance Telephone & Telegraph Co. is contemplating the installation of a new telephone system, of the harmonic selective type, in this city, the cost of which is estimated at $50,000.

HAMMOND, IND.—O. A. Kimbill, local manager of the Chicago Telphone Co. in this city, has announced that the contract for the new $12,000 exchange building has been let and work will be started at once. It is planned to occupy the structure within 60 days.

MANKATO, MINN.—The Mankato Citizens Telephone Co. is engaged in extending two toll lines between Mankato and Madison Lake, which will greatly increase the efficiency of the service.

PORTAGE, WIS.—The Portage Telephone Co. has completed plans for the erection of a new brick exchange to cost $8,000. A new switchboard costing $7,500 will also be installed.

Underground.

MCRAE, GA.—Manager W. D. Horton has announced that the McRae-Helena Telephone Co. is placing 6,000 feet of 100-pr. cable underground between Helena, Ga., and this town.

GALVA, IOWA.—The Galva Telephone Exchange is placing all its wires in underground conduit.

BATAVIA, N. Y.—The New York Telephone Co. will place 900 feet of conduit in this city at a cost of about $7,000.

Financial.

CATAWISSA, PA.—At the annual meeting of the Farmers Union Telephone Co. a 6 per cent. dividend was declared.

Elections.

NEW YORK, N. Y.—At the annual meeting of the stockholders of the New York Telephone Co. Otis H. Cutler and Edwin P. Maynard were elected directors, to succeed William H. Woolverton and Theodore F. Miller, deceased.

PORTSMOUTH, OHIO.—At the annual meeting of the stockholders of the Portsmouth Telephone Co. the following directors were elected to serve during the ensuing year: Levi D. York, Dr. W. D. Tremper, William Scott McKell, Harvey M. Allen, W. V. Schwartzbaugh, R. W. Manly and W. R. Fee. Officers were elected as follows at a subsequent meeting of the board of directors: President, Levi D. York; vice-president, Dr. W. D. Tremper; treasurer, William Scott McKell; secretary and general manager, Harvey M. Allen. Toll connections have recently been established with the Farmers' Telephone Co. and with the Fullerton Home Telephone Co., at Fullerton, Ky. The company will string about 5,000 feet of cable and make a number of improvements to its system.

KILLEEN, TEX.—At the annual meeting of the stockholders of the Killeen Rural Telephone Co. the following directors were elected for the coming year: W. J. D. Bradford, I. F. Hayse, W. C. Evans, H. C. Smith, J. J. Bishop, D. R. Walker and Freeman George. At a subsequent meeting of the directors the following officers were elected: W. J. D. Bradford, president; J. J. Bishop, secretary, and H. C. Smith, treasurer. John Seay was re-appointed manager. Many improvements and extensions to the plant are planned for the coming year.

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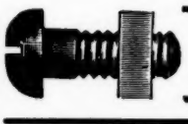

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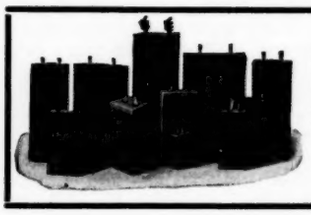

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